1908.

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ANNUAL REPORT OF THE COMMISSIONER OF PUBLIC HEALTH.

Presented to both Houses of Parliament by Command.

TO THE UNDER SECRETARY, HOME DEPARTMENT, BRISBANE.

Office of the Commissioner of Public Health,
Brisbane, 1st September, 1908.

Sir,—I have the honour to submit the annual statement of the work performed by my Department on matters concerning the public health for the year ending 30th June, 1908.

In presenting this Report it may not be considered out of place if at this juncture a brief *résumé* be given of the work undertaken by the Department in various branches of the public health service since the organisation of the Department in the beginning of the year 1901. The multiplicity and complexity of technical and administrative questions which arise in connection with the every day work of the Department may, perhaps, be better appreciated by a short sketch of the progress made by it from year to year.

The object aimed at in this Report is to obtain as far as possible a complete, connected, and comprehensive history of the present health and sanitary circumstances of the State as a whole, rather than an attempt to justify (if such justification indeed be necessary) the existence of the Department by the number and variety of works executed by it under "*The Health Act of* 1900."

The organisation called into existence by "*The Health Act of* 1900" has continued to be developed during the past eight years. Prior to the year 1900 there was little, or at best a very deficient, sanitary organisation. The then central authority—a Board of Health—was without legal power or a fitting administrative head, the responsibility of sanitary administration being wholly thrown upon the local authorities. "*The Health Act of* 1900" consolidated and amended prior health legislation, and provided for a Department of Public Health and for the appointment of a Commissioner as its head—a medical practitioner and expert in sanitary science, charged, under the Hon. the Home Secretary, with the due and effectual administration of the Act.

The legitimate position of the central authority was speedily made apparent—viz., to advise and stimulate the local authorities on matters pertaining to the Act, and also, where necessary, to compel the remedying of sanitary evils produced by local inefficiency or apathy.

That time and experience have smoothed out many of the creases of opposition and antagonism on the part of the local governing bodies to the work of the Department during the earlier years of its organization has been abundantly demonstrated. I cannot better express my appreciation of the cordial and pleasant relations which at present exist between the Department of Public Health and the local authorities throughout the State, than by reiterating the statement I made in my Annual Report of 1905, viz :—"To have earned the appreciation of the local governing bodies is good ; to have earned their active and willing co-operation in the administration and execution of a somewhat stringent Act of Parliament is better still."

With the view to presenting much statistical matter, not heretofore published in the Annual Report of the Department, I have deemed it advisable to abridge much official and personal views, rather than to sacrifice this statistical information, which, nowhere else given, is nevertheless essential to research of work both now and in the future.

The vital statistics—the arithmetic of disease—are presented in a way somewhat different from that adopted by the Registrar-General, to whom I am indebted for the information supplied. As vital statistics derive their greatest value by comparison with similar statistics in other years and in other places, a number of previous years in this State, and in many cases other States of the Commonwealth, are compared with the year 1907.

VITAL STATISTICS.

Births and Deaths.—The number of births registered during the calendar year 1907 in the whole of Queensland was 14,542, or 26·87 in every 1,000 persons living, the estimated population being 546,467. The number of deaths for the same period was 5,599, or 10·35 per 1,000 Of the 5,599 deaths, 1,122 were children under one year of age, giving an infant mortality of 77·2 per 1,000 births.

From the following table it will be noticed that while the general death rate, though a little higher than in 1906, has somewhat diminished during the past eight years, the actual number of infantile deaths recorded in the State for the year 1907 was 75 more than in 1906, and 93 more than in 1905. The infantile mortality per 1,000 births was 77·2 in 1907, as compared with 74·7 in 1906, and 75·5 in 1905. The rates for the whole of Queensland during the past eight years have been as follow :—

Calendar Year.	Estimated Population.	Estimated Mean Population.	Births.	DEATHS.		Birth Rate.	Death Rate.	Infantile Mortality per 1,000 Births.
				Total.	Under 1 Year.			
1900	494 166	490,325	14,810	5,747	1,456	30·19	11·72	98·4
1901	505,944	505.695	14,303	6,007	1,458	28·28	11 88	101·9
1902	510,853	513,612	14,216	6,204	1,424	27·68	12·08	100 2
1903	515,530	512,690	12,621	6,346	1,513	24·62	12·38	119·9
1904	521,655	519,178	14,082	5.250	1,072	27·12	10 11	76 1
1905	528,048	525,728	13,626	5,503	1,029	25·92	10·47	75 5
1906	535.113	532,783	14,019	5,095	1,047	26·31	9·56	74 7
1907	546,467	541,204	14,542	5,599	1,122	26·87	10·35	77·2

The rates in the metropolis during the past eight years are as follow : –

Calendar Year.	Estimated Population.	Estimated Mean Population.	Births.	DEATHS.		Birth Rate.	Death Rate.	Infantile Mortality per 1,000 Births.
				Total.	Under 1 Year.			
*1900								
1901	119.428	119,428	3,457	1,522	450	28 95	12·74	130·2
1902	122,815	121,122	3.511	1,608	440	28·99	13·28	125·3
1903	124.463	123.639	3.190	1,610	438	25·80	13 02	137·3
1904	125.672	125 068	3,301	1,433	372	26·39	11·46	112·7
1905	129.736	127.704	3,274	1,550	326	25 64	12·14	99 6
1906	132,468	131,102	3,211	1.311	283	24·49	10·00	88·1
1907	135,655	134,062	3,295	1,618	394	24·58	12 07	119·6

* 1901 is the first year the Metropolitan Area was tabulated.

Comparing the birth and death rates for the Metropolitan Area with those of the whole State, it will be seen that the figures are fairly constant for the period under review, the average general death rate for both the metropolis and the State being about 10 per 1,000. The infantile mortality, however, shows a striking difference, the rate for the metropolis in 1907 being 119·6 per 1,000 births as compared with 77·2 for the whole State.

INFANTILE MORTALITY.

Subjoined is a classified statement of the deaths of infants under one year during 1907, with the ratio of the deaths in each class to the 1,000 births during the year :—

Year.	Sex.	Under 1 Month.	1 and under 3 Months.	3 and under 6 Months.	6 and under 12 Months.	Total under 12 Months.
		Number of Deaths.				
1907 ...	Male	268	124	108	144	644
	Female	190	90	89	109	478
		Deaths to the 1,000 *Births.*				
1907 ...	Male	35 95	16·64	14·49	19·32	86·40
	Female	26·81	12·70	12·56	15·38	67·44

Eighty-six out of every 1,000 of male children born and 67 of every 1,000 females are found to have died before attaining the age of one year. The mortality is thus 1 in 12 of male infants and 1 in 15 of female infants.

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TABLE 1.

Deaths of Infants under One Year, and Proportion to Births.

(Totals for Each Year, and Means of 10 Years.)

Year.	Deaths of Infants under 1 Year of Age.					Total Births Registered in Each Year, and Mean of 10 Years.	Proportion of Deaths of Infants under 1 Year to every 1,000 Births.
	Under 1 Month.	1 Month and under 3 Months.	3 Months and under 6 Months.	6 Months and under 12 Months.	Total under 12 Months.		
1898	510	270	340	420	1,540	13,933	110·5
1899	498	289	340	394	1,521	13,899	109·4
1900	512	233	364	347	1,456	14,801	98·4
1901	457	265	324	412	1,458	14,303	101·9
1902	484	234	331	375	1,424	14,216	100·2
1903	407	303	361	442	1,513	12,621	119·9
1904	435	192	217	228	1,072	14,082	76·1
1905	386	154	217	272	1,029	13,626	75·5
1906	456	161	182	248	1,047	14,019	74·7
1907	458	214	197	253	1,122	14,542	77·2
Means of 10 Years ...	460	232	287	339	1,318	14,004	94·1

Total number of deaths of infants for the period included in this table = 13,182.

TABLE 2.

Deaths of Children under Five Years, and Proportion to Deaths at all Ages.

(Total for Each Year, and Means of 10 years.)

Year.	Deaths of Children under 1 to 5 Years of Age.						Total Deaths at all Ages for Each Year, and Mean of Ten Years.	Deaths under 5 Years; percentage of Mortality at all Ages.
	Under 1 Year.	1 Year and under 2 Years.	2 Years and under 3 Years.	3 Years and under 4 Years.	4 Years and under 5 Years.	Total Deaths under 5 Years.		
1898	1,540	374	159	129	79	2,281	6,243	36·54
1899	1,521	309	141	95	59	2,125	6,144	34·59
1900	1,456	234	87	64	49	1,890	5,747	32·89
1901	1,458	250	98	58	50	1,914	6,007	31·86
1902	1,424	221	77	63	33	1,818	6,204	29·30
1903	1.513	316	113	81	58	2,081	6,346	32·79
1904	1,072	192	100	63	55	1,482	5,250	28·23
1905	1,029	186	80	62	37	1,394	5,503	25·33
1906	1,047	153	74	43	39	1,356	5,095	26·61
1907	1,122	212	99	54	42	1,529	5,599	27·31
Means of 10 Years	1,318	245	103	71	50	1,787	5,814	30·74

Total number of deaths of children under five years included in above table = 17,870.

The following table is added to show comparison of Queensland to other States of the Commonwealth and New Zealand. Dealing with means of 10 years in Queensland, 94 infants under 1 year are found to die out of every 1,000 born, as against 124 in West Australia, 98 in both New South Wales and Victoria, 93 in Tasmania, 92 in South Australia, and 77 in New Zealand :—

TABLE 3.

Proportion of Deaths of Infants Under 1 Year of Age to every 1,000 Births.

Year.	Queensland.	New South Wales.	Victoria.	South Australia.	West Australia.	Tasmania.	New Zealand.
1898	110·5	122·0	134·1	140·1	166·1	115·9	79·7
1899	109·4	118·7	114·2	111·3	139·9	116·2	95·9
1900	98·4	103·3	95·3	99·8	126·1	80·0	75·2
1901	101·9	103·7	102·9	100·0	128·7	89·0	71·4
1902	100·2	109·7	108·6	94·0	142·0	79·1	82·9
1903	119·9	110·4	106·4	97·3	141·2	110·8	81·1
1904	76·1	82·4	77·9	70·5	113·0	90·7	71·0
1905	75·5	80·6	83·3	73·0	104·2	79·0	67·5
1906	74·7	74·5	92·9	75·9	110·0	90·2	62·1
1907	77·2	86·6	72·6	65·9	97·7	82·8	88·8
Means of 10 Years	94·1	98·7	98·8	92·8	124·3	93·0	77·2

The principal causes of mortality in children under one year for Queensland are given below, with the number of deaths for eight years from such causes. Under the old classification enteritis or diarrhœal diseases head the list, with premature birth next.

Under the new classification adopted in 1907, congenital debility is responsible for 303 deaths, and diarrhœa for 276 deaths of infants under one year.

The simplest division of the above lists would be one based as follows :—(i.) Unpreventable, (ii.) preventable. Under the latter may be grouped the deaths from diarrhœal diseases—marasmus, debility, convulsions, &c.—probably the result of improper feeding or care.

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TABLE 4.

Deaths Under One Year—Principal Causes.

* Principal Causes of Deaths of Infants.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	† Principal Causes of Deaths of Infants.	1907.
Influenza	14	22	13	12	11	8	6	Influenza	20
Whooping Cough	46	45	14	18	50	8	5	Whooping Cough	84
Diarrhœa	143	147	116	98	45	46	42	Meningitis	19
Want of Breast Milk...	61	39	35	27	9	22	24	Convulsions of children under five	62
Tabes Mesenterica	30	30	37	20	11	14	14	Tetanus	10
Premature Birth	198	207	208	171	175	149	200	Bronchitis	28
Atelectasis	26	28	22	22	30	16	25	Pneumonia	54
Other Congenital Defects	26	14	29	53	71	75	89	Diarrhœa and Enteritis, under two	276
Inflammation of Brain	20	35	23	23	13	21	19	Congenital Malformations	67
Convulsions	121	121	147	149	113	74	74	Congenital Debility, &c.	303
Tetanus	28	24	19	12	13	17	20	Other Diseases Peculiar to Infancy	26
Bronchitis	44	41	34	47	40	27	27		
Pneumonia	60	64	54	72	61	56	40		
Dentition	45	39	32	35	20	20	12		
Enteritis and Gastro Enteritis ...	282	307	349	423	248	261	271		
Dysentery	16	15	24	30	5	13	14		
Dengue Fever	...	...	...	...	...	29	3		

* Old nomenclature. † In 1907 the complete Bertillon System of nomenclature was adopted.

Diarrhœa mortality is notoriously great among infants. It is a well ascertained fact that infants fed solely from the breast are remarkably exempt from fatal diarrhœa, while infants fed in whatever way with artificial food are those which suffer most heavily. Ill-health of mothers, and consequent inability to provide the natural nutrition of infants and requisite nursing, and a want of knowledge of the proper rearing of infants, are conditions that operate in producing such mortality.

In many large cities measures have been adopted to spread among the mothers a knowledge of the best methods of feeding and caring for their infants, every house in the poorer districts being visited by a trained woman inspector as soon as possible after the registration of a birth therein. The good work now being performed by the Crêche in Brisbane deserves the heartiest support.

INFECTIOUS DISEASES.

Notification.

The following are the cases of infectious diseases in respect of which formal certificates were received by the Department from medical practitioners throughout the State since notification became legal:—

Diseases.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	Totals.
Diphtheria	255	149	295	283	206	325	306	1,819
Erysipelas	57	28	69	60	45	40	72	371
Puerperal Fever	10	24	18	14	6	11	18	101
Plague	36	91	29	35	56	32	49	328
Phthisis	...	...	...	*91	132	154	143	520
Scarlet Fever	115	71	644	570	28	20	42	1,490
Typhoid Fever	793	1,582	1,728	679	444	611	536	6,373
Deaths from Phthisis	22	263	206	127	91	75	83	867

* Half year only. Pulmonary Tuberculosis gazetted as a notifiable disease under the Health Act during last half of this year.

The following are the cases of infectious diseases in respect of which formal certificates were received by the Department from medical practitioners throughout the State from 1st July, 1907, to 30th June, 1908:—

Diseases.	1st July to 31st December, 1907.	1st January to 30th June, 1908.	Totals.
Diphtheria	105	208	313
Typhoid Fever	214	446	660
Erysipelas	40	35	75
Puerperal Fever	6	12	18
Continued Fever	...	...	...
Relapsing Fever	...	...	...
Phthisis	52	54	106
Scarlet Fever	30	28	58
Totals	447	783	1,230

The only deaths from phthisis formally received are as follow:—

1st July to 31st December, 1907	46
1st January to 30th June, 1908	51
Total	97

DISTRIBUTION OF CASES OF INFECTIOUS DISEASES FORMALLY REPORTED IN THE METROPOLITAN AREA FROM 1ST JULY TO 30TH JUNE, 1908.

Local Authorities.	Typhoid Fever.	Scarlet Fever.	Puerperal Fever.	Diphtheria.	Erysipelas.	*Phthisis.	Totals.	*Phthisis—Deaths.
Brisbane	79	5	10	42	17	78	231	48
South Brisbane	50	2	8	39	9	32	140	39
Ithaca	22	1	4	31	9	17	48	11
Windsor	8	...	...	8	1	12	29	4
Taringa	2	3	...	1	...	3	9	2
Enoggera	2	...	...	1	...	2	5	...
Sandgate	4	...	...	3	...	...	7	...
Balmoral	3	...	1	3	...	2	9	2
Belmont	...	...	...	...	...	...	...	1
Wynnum	4	...	...	2	...	1	7	...
Toombul	1	...	2	16	1	4	24	...
Toowong	10	...	...	6	1	9	26	2
Yeerongpilly	...	...	...	2	...	...	...	2
Kedron	...	...	...	4	1	3	8	...
Indooroopilly	...	3	...	...	...	...	3	...
Coorparoo	...	...	1	4	...	2	7	1
Stephens	...	...	...	6	3	5	14	...
Sherwood	11	2	...	1	...	5	19	1
Hamilton	2	1	...	8	1	7	19	3
Totals	198	17	26	177	43	182	643	116

* Including hospital cases.

The above notified cases do not represent all the cases that occurred, and especially is this true with regard to phthisis or pulmonary tuberculosis, which since the year 1904 has been a notifiable disease. Medical practitioners, it would appear, have some difficulty in notifying deaths from pulmonary tuberculosis where patients have shifted about from one place to another. As many of these cases die in hospitals, the hospital returns are included in the metropolitan cases.

As in previous years, typhoid fever and diphtheria remain the more prevalent diseases, and show but little variation in the numbers from year to year. Scarlet fever, on the other hand, has notably declined since the epidemic of 1903-4. The isolation of several cases of measles at Wattlebrae during the past year has raised the question whether measles ought to be added to the list of notifiable diseases. It is doubtful, however, if legislation could bring about a complete notification of what is purely an epidemic disease, and as many cases must of necessity escape medical care, isolation and disinfection are therefore the sole preventive measures. Isolation in a large majority of the homes is impracticable, and isolation in hospital would entail a formidable addition to the present or intended accommodation.

Early and complete notification would, no doubt, be invaluable in rendering possible early control over school infection, but the results of isolation are far less likely to be satisfactory in measles than in scarlet fever. The early infectiousness of measles—the catarrhal stage and before the eruption appears—being a very patent factor in the dissemination of the disease; similar considerations would apply to the compulsory notification of whooping-cough. It is a matter for congratulation that the Infectious Diseases Hospital at Wattlebrae is at last likely to be placed on a sound and solid basis in the immediate future. The "agreement" has been signed by the executive officers of all the local authorities of the Metropolitan Area, and a sum of £3,000 is to be spent in providing more up-to-date accommodation.

PHTHISIS.

The campaign against consumption, began in 1904 by the compulsory notification of pulmonary tuberculosis, continues to make steady progress.

I have pleasure in again drawing attention to the excellent work performed by Staff Nurse Perry. In her annual statement to me Nurse Perry says:—

> I have the honour to submit the following report of my work as nurse in connection with the Regulations instituted for the prevention of human tuberculosis for the year ending 30th June, 1908.
>
> I have visited during the year every case of tuberculosis notified to this Department as occurring within the Metropolitan Area, except a few cases where the practitioner in attendance preferred to personally undertake the charge of supervision, also cases admitted to Diamantina Hospital. Cases reported by the superintendent of the Jubilee Sanatorium, Dalby, are visited as soon as possible after returning to their previous residence.
>
> In the majority of cases, mainly of the working class, I noticed an absence of preventive measures, which indicates the urgent necessity of explaining to the patients and those attending to them the danger to which they are constantly exposed. The improvement in the surroundings of the patient after a visit or two has been paid is noticeable, an effort being made to carry out the rules suggested in the leaflets. The patients who are careless in carrying out instructions, and who fail to notify their removal from one place to another,

are sufferers who do not realise, apparently, that they are suffering from consumption, and will not be convinced. The houses or rooms vacated by these persons are therefore likely to be occupied again before any disinfection has been done unless notice be sent to the Department.

I am pleased to say there has not been one instance this year where I have been refused admission into the home of a consumptive patient. They continue to welcome my visits, and realise the benefit they derive from the instruction given to them, and grateful for the interest displayed in their welfare. In the majority of the cases reported tubercle bacilli have been found, and in many cases hereditary history was traced. The patients are made to realise the danger of expectorating in the streets.

The superintendents of the Dalby Sanatorium and Diamantina Hospital have done their utmost to further my work, and I have again this year discovered several cases that have not been notified before their admission into these institutions.

I have to acknowledge the courtesy of the medical practitioners whose patients I have visited during the year.

PLAGUE.

For the ninth year in sequence bubonic plague reappeared in the State during 1908.

The last case in human beings, in 1907, was reported on the 26th July; the last plague-infected rat on 20th December, 1907.

The first case in human beings in 1908 occurred in Brisbane on 3rd January, the first infected rat being found in the city on 22nd January, 1908.

The total number of human beings affected during 1907-8 was 31, of whom 21 died. The gross death rate was, therefore, 67·7 per cent.; but as two cases occurred among Chinese, two among Cingalese, and one kanaka, all males, and all fatal cases, the corrected death rate for whites is therefore 61·5 per cent.

The outbreak, particularly in the Metropolitan Area, was characterised by atypical symptoms and great variation from the usual clinical type in many individual cases.

Six cases in Brisbane were not diagnosed positively until after death, two septicæmic cases being followed by a secondary and fatal pneumonia. Of the fourteen cases at Cairns two were only diagnosed after *post-mortem* examination of the cadavers.

The following statement shows the incidence of plague in the State from 1st July, 1907, to 30th June, 1908 :—

Place.	Date.	Cases.	Deaths.	Case Mortality.
				Per cent.
Brisbane	July-June	16	13	87·5
Cairns	July-June	14	7	50·0
Mackay	29th April	1	1	100·0
Total	...	31	21	67·7

The fatal case at Mackay was a Chinese residing at a fish shop in the town. Three fatal cases (two Cingalese and one Portuguese) occurred on a sugar plantation at Mulgrave, 20 miles from Cairns. The Chief Inspector and an assistant inspector to the Department were despatched early in the outbreak to supervise cleansing and rat destruction operations at Mulgrave.

Where premises in the city were supposed to be infected, healthy guinea-pigs were allowed to run free for a certain time in the premises. Bacteriological examination showed plague infection present in a certain proportion of the guinea-pigs, and rat-fleas found on them were in several instances found to contain bacillus pestis. The guinea-pig experiment is now a part of the routine investigation work of the Department.

The rat-catching staff of the State Department of Public Health continued its labours throughout every day of the year. The gang is doing excellent work both in the collection of information as to the existence of plague among rodents and in the destruction of rats.

Rat-catchers have for some years past been maintained at the expense of the Government in every part of the State.

Six hundred and forty-seven premises have been disinfected in the Metropolitan Area during the year where cases of infectious diseases have occurred. A mixture, consisting of kerosine and crude carbolic, has been extensively used for the purpose of destroying fleas in plague-infected premises. In September, 1907, a special report on plague in Queensland, 1900-1907, was issued by me. The report was supplied to all the consular bodies, the health departments in various countries of the world, to members of the medical profession, to scientific societies, and to both Houses of Parliament. The report narrated the accumulated experience of eight successive years, and described at length the origin and nature of the disease.

The report as a whole, and more particularly that portion of it dealing with the epidemiology of plague, has been the subject of much favourable comment from many authorities throughout the world.

Among other observations, the following conclusions arrived at in the report may be summarised thus:—

1. That a close association exists between plague in rats (epizootic) and plague in man (epidemic).
2. The rat epizootic invariably precedes the epidemic, and the epidemic is wholly dependent upon the epizootic.
3. That personal contact in plague cases plays no part in the spread of epidemic bubonic plague.
4. The rat-flea is the transmitting agent of infection from rat to man.
5. That clothing or merchandise may carry infection by means of plague-infected rat-fleas.
6. That the degree of infectivity of houses is proportional to the number of rats which die of plague in them—that is, to the number of rat-fleas remaining alive in houses and ready to bite both man and rats.
7. That the "clinging" of infection to certain tenements or areas in the absence of rat presence can be explained by a constancy in flea occurrence, and apart from this there is no evidence with respect to Australian occurrences of "place infection."
8. That a seasonal prevalence of plague undoubtedly exists, and that the possible factor influencing it is a suitable mean temperature favouring flea prevelance and the habits of rats.
9. That the rat (*Mus rattus*), and the chief species of flea (*Pulex cheopis*) met with on it, play a more important part in the spread of plague than other species of rats, or the particular species of fleas found upon the latter; inasmuch as the *Mus rattus*, from its habits of breeding and nesting in the same shelter with man, is more likely to infect him through its ecto-parasites than the *Mus decumanus*, which shuns man as far as possible.
10. That the geographical range of occurrence of *Mus rattus*, and more especially of *Pulex cheopis*, determine to an extent its distribution and seasonal prevalence by reason of meteorological influences, and therefore the infection of plague in *epidemic* form.

It is interesting to note that since the publication of the report, confirmatory evidence of a very pronounced kind is forthcoming in support of many of the above conclusions by the recent reports of the Advisory Committee on Plague, carrying on its investigations in India. For the sake of future reference, and in order to complete the returns given in the report, the following tables are appended:—

TABLE I.

Metropolitan Area.

RETURNS OF HUMAN AND RAT PLAGUE FOR THE YEAR 1907.

Month.	Human Plague.	Rodents Infected.	Rodents Examined.	Infected.
				Per cent.
January	21	4	1,249	0·32
February	3	6	1,574	0·38
March	3	1	1,751	0·06
April	4	5	1,494	0·33
May	4	3	1,997	0·15
June	1	3	2,314	0·13
July	3	4	1,393	0·28
August	...	6	1,610	0·37
September	1	5	1,191	0·42
October	...	2	1,569	0·13
November	...	5	1,946	0·26
December	...	1	1,522	0·07
Totals for Year	40	45	19,610	0·23

TABLE II.

Metropolitan Area.

RETURNS OF HUMAN AND RAT PLAGUE FOR THE HALF-YEAR ENDING 30TH JUNE, 1908.

Month.	Human Plague.	Rodents Infected.	Rodents Examined.	Infected.
				Per cent.
January	4	...	1,719	...
February	2	21	1,612	1·3
March	3	1	1,487	0·067
April	1	...	1,900	...
May	...	17	1,799	0·94
June	2	11	1,556	0·707
Totals for Half-year	12	50	10,073	0·496

TABLE III.

Showing Incidence of Plague in Human Beings in the State of Queensland for Period 1900 to 1908 (30th June).

Area.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	Total Cases.	Total Deaths.
Brisbane (Metropolitan Area)—											
Attacks	56	36	82	21	30	28	11	40	12	316	...
Deaths	25	12	26	11	8	15	7	20	7	...	131
Ipswich—											
Attacks	1	...	...	...	1	8	...	2	...	12	...
Deaths	...	...	...	..	1	2	...	2	...	...	5
Maryborough—											
Attacks	...	...	...	...	2	10	...	...	...	12	...
Deaths	...	...	...	...	1	8	...	...	...	...	9
Childers—											
Attacks	...	...	...	...	...	1	...	...	...	1	...
Deaths	...	...	...	...	...	1	...	...	...	...	1
Bundaberg—											
Attacks	...	...	1	2	...	1	...	...	...	4	...
Deaths	...	...	1	1	...	1	...	...	...	...	3
Gladstone—											
Attacks	...	...	1	...	...	...	...	...	...	1	...
Deaths	...	...	1	...	...	...	...	...	...	..	1
Rockhampton—											
Attacks	36	...	...	2	...	...	11	...	...	49	...
Deaths	21	...	...	2	...	...	4	...	...	...	27
Townsville—											
Attacks	37	...	7	3	...	6	...	1	...	54	...
Deaths	9	...	5	2	...	6	...	1	...	...	23
Cairns—											
Attacks	5	...	...	1	2	2	10	...	14	34	...
Deaths	2	...	...	1	2	...	1	...	7	...	13
Port Douglas—											
Attacks	...	...	...	...	...	...	...	10	...	10	...
Deaths	...	...	...	...	...	...	...	2	...	...	2
Charters Towers—											
Attacks	1	...	...	...	...	...	...	...	...	1	...
Deaths	...	...	...	...	...	...	...	...	...	...	...
Mackay—											
Attacks	...	...	...	...	...	...	...	...	1	1	...
Deaths	...	...	...	...	...	...	...	...	1	...	1
Totals Cases	136	36	91	29	35	56	32	53	27	495	216
Totals Deaths	57	12	33	17	12	33	12	25	15	...	...

TABLE IV.

Statement Showing the General Mortality throughout the State for Years 1900-1908.

No.	Place.	Number of Epidemics.	Years.	Total Number of Attacks from January, 1900, to June, 1908.	Total Number of Deaths.	Case Mortality Percentages (Gross).
1	Brisbane	9	1900, 1901, 1902, 1903, 1904, 1905, 1906, 1907, 1908	316	131	41·45
2	Ipswich	4	1900, 1904, 1905, 1907	12	5	41·7
3	Maryborough	2	1904, 1905	12	9	75·0
4	Bundaberg	3	1902, 1903, 1905	4	3	75·0
5	Gladstone	...	1902	1	1	100·0
6	Childers	...	1905	1	1	100·0
7	Rockhampton	3	1900, 1903 1906	49	27	55·1
8	Townsville	5	1900, 1902, 1903, 1905, 1907	54	23	42·5
9	Cairns	6	1900, 1903, 1904, 1905, 1906, 1908	34	13	38·2
10	Port Douglas	1	1907	10	2	20·0
11	Charters Towers	...	...	1	...	Nil
12	Mackay	...	1908	1	1	100·0
	Totals	...	...	495	216	43·6

TABLE V.

Showing Sex Incidence and Mortality.

—	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	*1908.	Total.
Cases—										
Males	114	27	63	22	29	38	25	43	21	383
Females	22	9	28	7	6	18	7	10	6	111
	136	36	91	29	35	56	32	53	27	494
Deaths—										
Males	47	11	19	15	11	21	12	20	13	169
Females	10	1	14	2	1	12	...	5	2	47
	57	12	33	17	12	33	12	25	15	216

* To 30th June.

TABLE VI.

Showing Race Incidence Attacks and Corrected Death Rate for White Races. Deaths, 1900-1908 (Whole State).

Year.	Whites.	Chinese.	Kanakas.	Aboriginals.	Japanese.	Hindoos.	Cingalese.	Number.	Case Mortality.	Corrected Death Rate for White Races.
									Per cent.	Per cent.
1900	126 Attacks ...	9	1	...	...	...	...	136 Attacks	41·9	38·09
	48 Deaths ...	8	1	...	..	...	...	57 Deaths		
1901	35 Attacks ...	1	...	...	...	...	...	36 Attacks	33·3	34·2
	12 Deaths ...	...	...	...	...	...	...	12 Deaths		
1902	88 Attacks ...	3	...	...	...	...	...	91 Attacks	36·2	34·09
	30 Deaths ...	3	...	...	...	...	...	33 Deaths		
1903	25 Attacks ...	4	...	...	...	..	...	29 Attacks	58·6	52·0
	13 Deaths ...	4	...	...	...	...	...	17 Deaths		
1904	31 Attacks ...	2	1	1	...	...	...	35 Attacks	34·2	25·8
	8 Deaths ...	2	1	1	...	...	...	12 Deaths		
1905	53 Attacks ...	2	...	1	...	...	...	56 Attacks	58·9	56·6
	30 Deaths ...	2	...	1	...	...	...	33 Deaths		
1906	30 Attacks ...	1	...	...	1	...	...	32 Attacks	37·5	33·3
	10 Deaths ...	1	...	...	1	...	...	12 Deaths		
1907	53 Attacks ...	...	...	...	...	...	...	53 Attacks	47·1	47·1
	25 Deaths ...	...	...	...	...	...	...	25 Deaths		
1908	22 Attacks ...	2	1	...	...	...	2	27 Attacks	55·5	45·4
	10 Deaths ...	2	1	...	...	...	2	15 Deaths		

Return of Rodents Examined and those Infected in the State at the Towns shown, during 1907.

—	TOWNSVILLE.	IPSWICH.	CAIRNS.		MARYBOROUGH.	ROCKHAMPTON.	BUNDABERG.	GLADSTONE.
	Examined.	Examined.	Examined.	Infected.	Examined.	Examined.	Examined.	Examined.
January	574	...	...	...	241	518	71	6
February	218	143	...	...	202	749	28	8
March	282	102	...	...	245	810	46	1
April	290	61	...	...	448	748	79	7
May	320	...	...	...	311	677	57	8
June	299	72	...	...	212	491	78	8
July	158	13	...	...	274	723	60	14
August	151	...	...	...	225	484	49	6
September	292	...	93	49	233	435	6	10
October	...	...	145	11	165	493	29	6
November	125	...	8	...	286	389	82	9
December	298	...	...	...	141	465	5	6

Return of Rodents Examined and those Infected in the State at the Towns shown, for Half-year ending 30th June, 1908.

—	TOWNSVILLE.	IPSWICH.	CAIRNS.		MARYBOROUGH.	ROCKHAMPTON.	BUNDABERG.	GLADSTONE.
	Examined.	Examined.	Examined.	Infected.	Examined.	Examined.	Examined.	Examined.
January	137	...	63	30	253	604	47	9
February	96	...	14	4	223	619	99	6
March	113	74	1	...	215	683	41	9
April	121	119	...	...	198	591	39	9
May	120	119	4	...	228	512	3	9
June	137	...	44	...	163	594	14	3

LEPROSY.

On the 30th June, 1908, sixty-five persons (59 males, 6 females, including 12 white males and 4 white females) remained under detention at the Lazaret at Peel Island, Moreton Bay. During the fiscal year eight persons were reported under the Leprosy Act as being suspected lepers, and, after careful investigation of the clinical and bacterological report, six were admitted to the Lazaret under warrants issued by the Hon. the Home Secretary. One patient died at Rockhampton before removal, and another, an aboriginal, is at present detained at Friday Island awaiting transit to the Lazaret.

During the year 1907 forty patients were removed from the Friday Island Lazaret to the Lazaret at Peel Island, which latter is now established as a suitable and conveniently arranged leper settlement.

The segregation of lepers cannot be considered as anything more than an attempt to restrain the disease, the method of transmission still remaining a mystery.

The question of carrying out some research work in leprosy was dealt with in my last Annual Report. So far but little progress has been made. With regard to treatment, Dr. Row, the medical superintendent in charge of the Lazaret, reports that he is obtaining some success with guaiacol and chaulmoogra oil. The method recently published by Deycka Pacha (the Nastin treatment) is to be given ample trial when the ordered supplies come to hand.

TABULAR STATEMENT OF CASES OF LEPROSY RECORDED IN THE STATE OF QUEENSLAND FROM 1ST JULY, 1907, TO 30TH JUNE, 1908.

No.	Initials.	Sex.	Age.	Race or Nationality.	Occupation.	Form or Type.	Assigned Place of Residence.	Date of Segregation.	Died.	Remaining.
1	J.W.	M	...	European	Bushman	...	Rockhampton	...	Died at Springsure, 13th Aug., 1907	...
2	L.	M	25	Aboriginal	...	Mixed	Daintree River	30th Nov., 1907	...	Yes.
3	J.J.J.	M	..	Kanaka	Labourer	Mixed	Mackay	7th Jan., 1908	...	Yes.
4	A.P.	M	...	European	Farmer	Mixed	Petrie's Creek, Nambour	11th Mar., 1908	...	Yes.
5	J.J.M.	M	12	European	Schoolboy	Mixed	South Brisbane	1st April, 1908	...	Yes.
6	A.	F	40	Aboriginal	...	Tubercular	Cape York	Detained at Friday Island	...	...
7	J.	M	40	Japanese	Labourer	Mixed	Proserpine	9th April, 1908	...	Yes.
8	G.K.	M	45	Scotch	...	Mixed	Charters Towers	22nd April, 1908	...	Yes.

RETURN SHOWING THE NUMBER OF LEPERS ON THE REGISTER IN THE STATE DURING THE YEAR 1907, AND NUMBER SEGREGATED AT THE LAZARET, PEEL ISLAND, MORETON BAY, 1907.

No.	Consecutive No. See "A History, &c."	Name.	Sex.	Age.	Race or Nationality.	Occupation.	Form or Type.	Previous Duration of Illness.	Assigned Place of Residence.	Date of Segregation.	Died.	Remaining in Lazaret.
1	20	P.R.S.	M.	22	Queenslander	Not stated	Nodular	Not stated	Brisbane	22-9-98	..	1
2	26	O.	F.	33	Polynesian	Household duties	do	do	Mackay	4-8-99	26-2-08	
3	30	G.S.	M.	40	Queenslander	Shearer	do	do	Dalby	30-10-00	9 11-07	
4	31	O.B.	F.	15	do	Not stated	Mixed	do	Townsville	6-6-02	...	1
5	32	D.	M.	40	Aboriginal	Stockman	Nodular	do	Rockhampton	22-10 03	...	1
6	33	R W.	M.	73	English	Bullock-driver	do	do	Dunwich	21 11-03	...	1
7	34	J.J.F.	M.	27	Queenslander	Farmer	do	do	Cordalba	23-12 03	...	1
8	36	R.V.D.	F.	42	N. S. Wales	Household duties	do	do	Mackay	13-4-04	...	1
9	37	B.W.	M.	38	Polynesian	Labourer	do	do	Bundaberg	22 7 04	...	1
10	39	D.E.B.	M.	32	Queenslander	Shearer	do	do	Roma	7 11-04	...	1
11	42	M.	M.	29	Polynesian	Labourer	do	do	Bundaberg	8 9 05	...	1
12	43	J.B.	M.	30	do	do	do	do	do	8 9 05	...	1
13	44	G.	M.	47	do	do	do	do	do	18-10-05	...	1
14	46	P.	M.	37	Aboriginal	Station hand	do	do	do	18-10-05	...	1
15	47	L.L.	M.	36	Polynesian	Labourer	do	do	do	16-12-05	26 3 07	
16	48	P.T.	M.	62	Italian	Tobacco-planter	Mixed	do	Cairns	1 3-06	...	1
17	50	C.	M.	29	Polynesian	Labourer	Nodular	do	Mackay	1 3 06	...	1
18	51	L.T.	M.	60	do	do	Nerve	do	Cairns	1-3-06	...	1
19	53	A.G.	M.	35	Chinese	do	Mixed	do	Ayr	1-3-06	...	1
20	54	A.	M.	44	Cingalese	Cook	Nerve	do	Geraldton	1 3-06	...	1
21	56	A.J.C.	M.	16	Queenslander	...	Nodular	do	Normanton	8-5 06	...	1
22	57	H.K.	M.	46	German	Blacksmith	Mixed	do	Brisbane	11-6-06	...	1
23	58	H.L.	M.	30	Polynesian	Labourer	Nodular	do	Mackay	26-7-06	...	1
24	59	C.W.	M.	66	Chinese	...	do	do	Rockhampton	3 11-06	...	1
25	60	M.	M.	29	Polynesian	Labourer	Mixed	do	Brisbane	16-11-06	...	1
26	63	J.S.	M.	22	do	do	Nodular	do	Bundaberg	21-1-07	...	1
27	64	T.	M.	25	do	do	do	do	Brisbane	21-1 07	...	1
28	65	B.	M.	30	do	do	do	do	Bundaberg	18 2-07	20-6-08	
29	66	M.	M.	35	do	do	do	do	do	18-2 07	6-12 07	
30	67	J.K.	M.	40	do	do	do	do	do	28-11-04	24-8-07	
31	68	C.E.	M.	44	do	do	do	8 or 9 years	Mackay	May, '03	...	1
32	69	J.O.	M.	38	do	do	do	2 months	Johnstone River	Feb., '04	...	1
33	70	J.T.	M.	33	do	do	do	1 year	Mackay	Feb., '04	19-5-08	
34	71	D.P.	M.	49	do	do	do	2 years	Cairns	Nov., '04	...	1
35	72	J.	M.	43	do	do	do	Not stated	Townsville	Dec., '02	...	1
36	73	Q.	M.	52	do	do	do	do	Herbert River	15-5-03	13-12 07	
37	74	B.S.	M.	36	do	do	do	do	Thursday Island	June, '02	...	1
38	75	B.H.	M.	49	do	do	do	About 2 years	Mackay	Oct., '06	...	1
39	76	S.S.	M.	28	do	do	do	Not stated	Thursday Island	24-12-03	...	1
40	77	N.	M.	25	do	do	do	9 or 10 years	Mackay	2-6-99	9-8-07	
41	78	P.	M.	32	Aboriginal	do	do	Not stated	Geraldton	19-3-96	...	1
42	79	J.L.	M.	38	Polynesian	do	do	do	Johnstone River	Mar., '05	...	1
43	80	P.	M.	28	do	do	do	do	Herberton	May, '04	...	1
44	81	F.	M.	30	do	do	do	6 months	Mackay	June, '99	...	1
45	82	T.	M.	42	do	do	Nerve	Not stated	do	7 2 00	...	1
46	83	Q.	M.	39	do	do	Nodular	do	Johnstone River	10 4-05	...	1
47	84	N.	M.	37	do	do	do	do	Cairns	23-11-04	15-7-08	
48	85	A J.M.	F.	35	do	Household duties	do	2 years	Childers	Nov., '04	...	1
49	86	A.D.	M.	50	Chinese	Gardener	do	Not stated	Geraldton	2-6 99	5-8-07	
50	87	J.M.	M.	40	Polynesian	Labourer	do	do	Townsville	17-11-01	...	1
51	88	T.M.	M.	27	Aboriginal	do	do	do	Stradbroke Island	4-10-04	...	1
52	89	Y.	M.	35	Polynesian	do	do	do	Friday Island	23-11-04	...	1
53	90	S.W.	M.	47	do	Labourer	Mixed	do	Townsville	15-5 03	...	1
54	91	A.	F.	25	Aboriginal	Housewife	Nodular	do	North Queensland	7-2-00	...	1
55	92	P.L.	M.	50	Polynesian	Labourer	do	2½ years ago	Herbert River	25-7-07	...	1
56	93	C.	M.	40	do	do	do	Not stated	Cairns	25-7-07	...	1
57	94	M.	M.	35	do	do	do	18 months	do	25-7-07	...	1
58	95	J.E.	M.	56	do	do	do	1 year	Townsville	25-7-07	...	1
59	96	P.L.L.	M.	40	do	do	do	do	Cairns	25 7-07	...	1
60	97	N.	M.	40	do	do	do	3 years	Mackay	25 7-07	...	1
61	98	C.	M.	32	do	do	do	Several years	Cairns	25-7-07	...	1
62	99	M.	M.	30	do	do	do	8 months	Herbert River	25 7 07	...	1
63	100	B.	M.	60	do	do	do	Not stated	Cairns	25-7 07	...	1
64	101	W.	M.	45	do	do	do	12 months	Halifax	25-7-07	...	1
65	102	T.	M.	30	do	do	do	2 years	Cairns	25-7-07	...	1
66	103	F G.	M.	26	Queenslander	Stockman	do	6 years	Cooktown	25 7 07	...	1
67	104	H.F.	M.	19	do	Farmer	do	Not stated	Cairns	25-7-07	..	1
68	105	P.M.	F.	13	do	...	do	4½ years	Charters Towers	25-7-07	..	1
69	106	N.M.	F.	22	do	...	do	6 or 7 years	do	25 7-07	...	1
70	107	C.S.	M.	36	do	Tailor	do	Not stated	Bundaberg	12-8-07	...	1
71	108	M.	M.	37	Polynesian	Labourer	do	do	Cairns	23-11-04	...	1

QUARANTINE.

The State remains singularly free from exotic diseases. During the year the port health officers carried out their responsible duties effectively and smoothly. Particulars of the work done by the Port Health Officer (Dr. Woolrabe) at Brisbane is given in Appendix C.

The severe outbreak of smallpox which occurred recently at Japan, and more particularly in and about Kobe, made itself known here by the arrival at Thursday Island of the ss. "Aldenham" on 12th April, 1908, with a case of smallpox aboard. The patient—one of the crew, a Chinaman—was landed at the quarantine station, Friday Island, together with two lady passengers for Thursday Island. The vessel was thoroughly disinfected, all on board vaccinated, and the vessel allowed to proceed under quarantine to Sydney. No further development occurred, and the patient was discharged cured on 22nd May, 1908.

On 28th January, 1908, a case of smallpox occurred on board the ss. "Empire," from China. The case was one of a virulent type, and death took place on 2nd February, thirteen days out from Kobe. The patient was buried at sea off Timor. No one landed at Thursday Island. The quarters of the crew on board were disinfected, the vessel cleansed, and all on board vaccinated.

As the "Empire" had no passengers and no cargo for Queensland ports, the vessel was allowed to proceed under quarantine to Sydney. No further cases occurred.

On 26th January, 1908, the large passenger steamer "Nikko Maru," which plies between Australia, Japan, and the Philippines, was found on arrival at Manila to have three persons afflicted with smallpox on board. These were removed, and measures of disinfection and vaccination rigidly carried out by the American Health Authorities.

As only ten days had elapsed since the date of attack of the last case by the time the vessel reached Thursday Island, the passengers for the latter place were detained in quarantine there and their personal effects disinfected, together with the cargo for Thursday Island. All on board had been vaccinated, and the vessel was allowed to proceed down the Queensland coast under quarantine, and subjected to strict inspection on her arrival at Brisbane. No further development took place.

In June last, at the request of the Hon. the Prime Minister of the Commonwealth, and with the consent of the Hon. the Acting Premier of this State, I proceeded to Thursday Island to select and report upon a site for the proposed quarantine station under the Commonwealth Quarantine Act, as well as to advise the Commonwealth Authorities upon the equipment necessary to an up-to-date quarantine station at this the most important "gateway" to the Commonwealth.

A site was selected by me on Hammond Island, and an official report duly forwarded to the Federal Authorities and to the Hon. the Home Secretary.

Eighty-one certificates of fumigation and 117 berthing certificates were issued at the port of Brisbane in connection with the Plague Regulations.

FOOD.

PART VI.—"*The Health Act of* 1900."

TABLE SHOWING ALL SAMPLES OF FOODS SUBMITTED TO STATE ANALYST DURING YEARS 1900-1908 (30TH JUNE).

Year.	Certificate Number.	Description of Article.	Result of Analysis.	Action.	Remarks.
1901 ...	1123	"Raspberry"...	Contained 28 per cent. of proof spirit	...	All samples in this list taken for purposes of information only, at time Food Regulations being drafted
	1081	"Raspberry"	Made of artificial flavouring essence		
	1082	"Raspberry"...	Contained 7 grains of salicylic acid per gallon		
	1101	"Raspberry Syrup" ...	Contained 70 grains of salicylic acid per gallon		
	1106	"Raspberry Syrup" ...	Contained 35 grains of salicylic acid per gallon		
	1108-1112	Raspberry Vinegar	Not genuine		
	1309, 1326	Teas	Adulterated with "lie tea" ...	Prevented from going into consumption	
	1310, 1352	Teas	Genuine		
	1079	Rum	Genuine		
	1086	Rum	43 degrees underproof		
	1104, 1109	Ginger Wine	Contained 35 and 28 grains of salicylic acid per gallon		
	1102-1110	Vinegar	Not genuine—acetic acid diluted with water		
	1377, 1463	Cream of Tartar	Genuine		
	1464	Cream of Tartar	Contained 93·9 per cent. of potassium bi-tartrate		
	1083-1113	"Colouring Matter" ...	Roseaniline (a coal tar dye)		
	940	Whisky	Contained 63·7 per cent. of proof spirit		
	1080	Whisky	Reduced 24 degrees underproof		
	985	Beer	Contained 3½ grains salicylic acid per gallon		
	1149	Milk (2 samples)	Genuine		
1902 ...	...	Cream of Tartar (120 samples)	66 over 95 per cent. purity; 46 but 90 to 95 per cent.; 7 under 90 per cent.; 1 acid phosphate of calcium	Samples below 95 per cent. refused admission through Customs	
		Fruit Essences (37 samples)	26 fictitious; 11 genuine	*	
		Milk (2 samples)	Genuine		
		Milk	26 per cent. added water		

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* Consignments withdrawn from sale in accordance with agreement made with Brisbane Grocers' and Queensland Traders' Associations.

TABLE SHOWING ALL SAMPLES OF FOODS SUBMITTED TO STATE ANALYST DURING YEARS 1900-1908 (30TH JUNE)—*continued.*

Year.	Certificate Number.	Description of Article.	Result of Analysis.	Action.	Remarks.
1902	...	Condensed Milk (22 samples)	From 16 per cent. butter fat to nil		
		Tea (7 samples)	Genuine		
		Water (2 samples)	Condemned		
		Meat (2 samples)	Found to contain "ptomaines"	Condemned	
1903	...	Rum	Adulterated with water	Vendor fined	In all, 209 samples were submitted this year
		Wine	Mostly fermented sugar and water	Total fine £25 17s. 10d.	
		Wine (3 samples)	Sugar, water, and artificial colouring	Total fine £25 17s. 10d.	
		Wine (6 samples)	Mostly sugar and water	Total fine £15 17s.	
		Wine (2 samples)	Fictitious	Total fine £15 17s.	
		Whisky	5·4 per cent. added water	Fine £5 6s. 6d.	
		Liquor (2 samples)	Fit for consumption		
		Cider	Fictitious	Fine £15 17s.	
1904	...	Milk (2 samples)	Each contained 15 per cent. added water	Vendors cautioned	In all, 274 samples submitted by Health Department this year
		Condensed Milk (3 samples)	Good quality		
		Tea (3 samples)	Adulterated with "lie tea"	Condemned	
		Vinegar (4 samples)	Acetic acid diluted with water	*	
		Schnapps	25 per cent. added water	*	
		Brandy	Genuine		
		Whisky	Genuine		
		Beer	Genuine		
		Essences (8 samples)	3 genuine; 2 very dilute; 3 fictitious	*	
		Oils (20 samples)	4 genuine olive oil; 8 cotton-seed oil; 6 arachis oil; 2 mixture arachis and sesame oils	*	
		Cordials (4 samples)	1 genuine; 3 fictitious		
		Jam (5 samples)	3 genuine; 2 contained 1 grain each salicylic acid	*	
		Sauces (5 samples)	3 genuine; 2 contained 0·2 to 2·0 grains of salicylic acid per lb.	*	
		Baking Powder (3 samples)	Genuine		
		Custard Powder	Coloured with coal tar dye	*	
		Cornflour	Genuine		
		Cocoa	Genuine		
		Mustard	Mixture of starch and mustard	*	
		Mustard	Contained starch, pepper, and mustard	*	
		Tinned Fish (3 samples)	Genuine		
		Tinned Fish (4 samples)	Contained starch and preservatives	*	
		Tinned Meat (3 samples)	Contained starch, boric acid, and alum	*	
		"Ham and Tongue"	Contained starch and boric acid	*	
		Schnapps	280 grains sulphuric acid per gallon	Fined £30 9s. 6d., including costs	
		Rum	15 per cent. added water and nicotine		
		Rum	Nicotine present	Fined £10 and £5 9s. 6d. costs	
		Liquor	Nicotine present	Fined £200, and 150 gallons of the liquor destroyed	
1905	...	Cream of Tartar (122 samples)	31 failed to come up to standard of 95 per cent. and were refused admission through the Customs. The average composition of the whole 122 samples was slightly over 95 per cent.	...	In all, 202 samples submitted for analysis this year
		Tea (9 samples)	8 passed; 1 contained "lie tea"	Refused admission	
		Milk (6 samples)	2 contained 56 and 80 grains respectively of boric acid	Vendors fined	
		Mustard (5 samples)	4 passed		...
		Custard Powder (5 samples)	Maize starch coloured with turmeric	*	
		Tinned Peas (3 samples)	All contained copper in proportion of 0·5 to 0·66 grains per lb.	*	
		Table Jellies (2 samples)	Glucose, cane sugar, and aniline dyes	*	
		Cordials (3 samples)	Genuine		
		Culinary Essences (3 samples)	Genuine		
		Water (7 samples)	Passed		
		Milk (3 samples)	1 contained 10 per cent.; 1, 16 per cent.; and 1, 20 per cent. added water	Vendors prosecuted	
		Water (30 samples)	3 contained typhoid and coli organisms; 12 contained coli organisms	Supplies condemned	
		Tinned Salmon (20 samples)	Tins blown	Condemned	
1906	...	Cream of Tartar (279 samples)	74 below 95 per cent.	Refused admission through Customs	In all, 669 samples and 3,549 determinations made for Health Department this year
		Milk (24 samples)	2 below standard	Vendors cautioned	
		Condensed Milk (27 samples)	8 below 10 per cent. standard	*	
		Culinary Essences (77 samples)	36 below standard	*	
		Pickles (75 samples)	26 contained preservatives	*	
		Jams (49 samples)	2 tins only contained preservatives	Condemned	
		Tinned Meat (38 samples)	11 contained preservatives	Condemned	
		Cordials (10 samples)	6 contained preservatives	Condemned	
		Hop Beer (2 samples)	1 contained 16·6 per cent. proof spirit; 1 contained 25·2 per cent. proof spirit	Condemned	
		Tinned Peas (18 samples)	15 contained from 1·5 to 3·5 grains of copper per lb.	Condemned	
		Chutney	Adulterated	Fined £5	
		Essences	Adulterated with proof spirit	Fined £5	
		Essences	Adulterated with proof spirit	Fined £5	
		Liquor	Adulterated	Fined £10	
		Liquor	Adulterated	Fined £2	
		Liquor	Adulterated	Fined £100	
		Liquor	Adulterated	Fined £100	
		Liquor	Adulterated	Fined £5	

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* Consignments withdrawn from sale in accordance with agreement made with Brisbane Grocers' and Queensland Traders' Associations.

TABLE SHOWING ALL SAMPLES OF FOODS SUBMITTED TO STATE ANALYST DURING YEARS 1900-1908 (30TH JUNE)—*continued.*

Year.	Certificate Number.	Description of Article.	Result of Analysis.	Action.	Remarks.
1907-8	...	Milk (81 samples)	66 failed to pass legal standard for solids, not fat: varying in the proportion of indicated added water from 1 to 19 per cent., with an average of 8·7 per cent.	Vendors prosecuted and fined. (See list below.)	527 samples, involving 3,551 determinations, submitted this year
		Cream of Tartar (249 samples)	28 under 95 per cent.	Refused admission through Customs	
		Potted Meats (14 samples)	7 contained preservatives	Condemned	
		Culinary Essences (28 samples)	17 contained only traces of flavouring agent	*	
		Sauces (14 samples)	Genuine		
		Vinegar (13 samples) ...	10 diluted acetic acid	*	
		Beverages and Cordials (19 samples)	Genuine		
		"Sarsaparilla" (5 samples)	3 contained 5 grains each of salicylic acid	*	
		Tinned Peas (25 samples) ...	18 contained copper sulphate ranging from 0·4 to 2·3 grains per lb.	*	
		Condensed Milk (10 samples)	6 below standard	*	
		Spirituous Liquors (6 samples)	Up to standard		
		Water (18 samples)	9 contained diluted sewage ...	Supplies condemned	

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* Consignments withdrawn from sale in accordance with agreement made with Brisbane Grocers' and Queensland Traders' Associations.

In addition to the above the following foodstuffs were found on examination by the Inspector of the Department to be unfit for human consumption and were destroyed :—

1901-2—
- 20 crates bananas
- 11 bags potatoes
- 30 boxes plums
- 7 cases lemons
- 24 boxes dates
- 5 cases pears
- 13 cases (988 tins) fresh herrings
- 1 case bloaters (80 tins)
- 1 case (87 tins) herrings
- 150 quarter-casks salt herrings

1902-3—
- 100 crates bananas
- 191 bags of potatoes
- 100 boxes of dried apricots
- 42 cases of onions
- 1 bag onions
- 1 box dates
- 1 bag dates
- 2 barrels salmon

1903-4—
- 211 bags potatoes
- 56 crates bananas
- 51 boxes dried codfish
- 10 boxes dried apples
- 39 cabbages
- 4 bags onions
- 4 bottles potted chicken
- 6 bottles anchovies
- 1 box dates
- 1 bag sugar
- 1 case bacon

1904-5—
- 213 crates bananas
- 11 boxes butter
- 75 half-barrels salt herrings
- 135 cases oranges
- 18 tins jam

1906-7—
- Tinned peas, 1,037 dozen
- Tomato sauce, 93 dozen
- Worcestershire sauce, 138 dozen
- Bonton sauce, 5 dozen
- Ketchup (blue label), 194$\frac{8}{12}$ dozen } withdrawn from sale
- Ketchup (blue label), 1,319 dozen } withdrawn from sale
- Flavouring essences, 6 dozen
- Pea sausage, 8 cwt.
- Macaroni, 2 cases
- Vermicelli, 1 case.

1907 (1st July) to 1908 (30th June)—
- Tinned peas, 1,353 tins
- Tinned fish, 1,529 tins
- Meat paste, 3,284 tins
- Fish paste, 54 tins
- Sardines, 675 tins
- Pickels, 315 bottles
- Preserved fruit, 154 tins
- Chutney, 23 bottles
- Tomato sauce, 154 bottles
- Other sauces, 27 bottles
- Condensed milk, 650 tins
- Jams, 1,167 tins
- Coffee, 66 tins
- Baking powder, 84 tins
- Egg powder, 119 tins
- Macaroni, 201 packets
- Vermicelli, 65 packets
- Coffee essence, 19 bottles
- Beans, 23 tins
- Asparagus, 6 tins
- Golden syrup, 60 tins
- Infants' food, 4 bottles
- Cordials, 2 bottles
- Turtles, 6 bottles
- Salt salmon, 47 barrels
- Dates, 61 boxes
- French beans, 12 bags
- Rabbits, 6 tins
- Ox tongues, 2 tins
- Oysters, 1 tin
- Vegetables, 30 tins
- Honey, 4 bottles
- Ox cheek, 1 tin
- Turtle soup, 2 tins
- Luncheon beef, 44 tins
- Carrots, 20 bags
- Potatoes, 3 bags
- Oranges, 93 cases
- Onions 2 bags
- Tomatoes, 36 cases
- Mangoes, 116 cases
- Pineapples, 324 cases
- Pears, 20 cases
- Apples, 10 cases
- Quinces, 13 cases
- Bananas, 35½ crates
- Limejuice, 19 bottles
- Fruit crystals, 36 packets
- Jelly crystals, 17 packets
- Preserved ginger, 11 tins
- Dried peaches, 4 cwt.
- Dried apricots, 3 cwt.

Gross weight (1907-8)—34 tons 15 cwt. 1 qr. 26 lb.

In 1908 (to 30th June) thirty-four samples of milk were taken and submitted to analysis. As a result ten offenders were prosecuted and fined; nine vendors were cautioned.

The total fines for adulterated milk to 30th June amounted to the sum of £34 7s. and costs. From the above date up to the 28th August this year, the fines for adulterated milk total £134 15s. and costs.

An additional inspector having been added to the staff of the Department during the fiscal year, it has now been possible for the Department to keep itself more in touch with the Northern towns of the State. An inspection of the foodstuffs exposed for sale in the following towns was carried out, and action taken accordingly—viz., Maryborough, Gladstone, Mackay, Gympie, Bundaberg, Rockhampton, Mount Morgan, Townsville, Charters Towers, Cairns, Cooktown, Beenleigh, Beaudesert, Kingaroy, Clifton, and Ipswich.

At the present time inspections are being carried out by the staff inspectors in the South-western and Western districts of the State.

MILK.

The following memorandum was prepared and published for general information:—

Milk and its Relation to the Public Health.

The problem of furnishing milk to a large city has during the last few years demanded the serious attention of the more progressive health authorities in many parts of the world. The importance of obtaining a pure and wholesome milk supply is recognised by all intelligent people, and should require no argument. Public health demands the purity of all milk and milk products.

Milk forms a portion of the everyday food of man, and, next to bread, milk is more extensively used as an article of diet than any other foodstuff.

Milk holds a peculiar place in the nation's dietary because of its varied applicability. Containing as it does the essentials of a perfect nation, proteids, carbohydrates, fats, inorganic salts and water, it is capable of almost universal use. Unlike many other articles of diet, milk is consumed in many cases in an uncooked state, making it, therefore, a dangerous food should it perchance contain any deleterious organisms. Because of its composition, and its facility of ingestion and comparative ease of digestion, it constitutes an important food for the sick and convalescent, and thus it will be readily understood that those most dependent upon this food—the sick and convalescent, infants and children—constitute that part of the community suffering the greatest injury from the use of a food adulterated in any way or robbed of its nutritive content. It is recognised by the medical profession in all parts of the world that gastro-intestinal disease is the largest single factor determining infant mortality, a condition in great measure due to improper methods of feeding.

This enormous loss of potential wealth is of grave concern to the nation, and a question worthy of most careful consideration. Milk holds a peculiar position among foodstuffs in that it is an excellent medium for the growth of many micro-organisms which may gain access to it in its journey from the cow to the consumer. Of the diseases conveyed in milk, apart from those derived from the cows themselves, may be mentioned typhoid fever, dysentery, cholera, diphtheria, scarlet fever, and tuberculosis.

While the positive conveyance of tuberculosis from domestic animals to man is still disputed by some, especially that of bovine tuberculosis through the use of milk and meat of tubercular animals, because of slight morphologic and biologic differences between the bacillus as found in bovine and human tuberculosis, the trend of opinion to-day is towards the belief that milk of all tubercular animals is dangerous to public health. Quite recently I have been informed, from an authoritative source, that certain pigs fed on milk from a certain supply were affected with tuberculosis (ascertained by *post-mortem* examination of viscera), while other pigs in the same shed, if not in the same sty, fed on milk derived from a different source, were healthy. The reasons for securing a supply of pure and wholesome milk are so numerous, so important, and apparently so obvious, that it is somewhat surprising so much ignorance should prevail among vendors and consumers on this question. It is evident that a further "campaign of education" is urgently needed, and in this connection it is only fair to state that Brisbane's milk supply is only the local aspect of a world-wide problem. The findings and experiences, therefore, of health authorities in other countries of the world must necessarily be of considerable interest and value.

Such reports are numerous, the world's literature on milk supply being very extensive.

I have just received a volume of some 757 pages, issued by the Public Health Service of the United States, on the subject of milk; it is probably the most complete scientific production of its kind yet published, and should prove of immense value as a reference work to the officers of my Department.

The laws and ordinances governing the supervision of milk in this State are easily obtainable. *Ignorantia legis neminen excusat.* While ignorance of the law excuses no one, yet it is desirable to make widely known what is regarded as sound dairy milk within the legal standards, and what is regarded by the authorities as adulterated milk.

In general, it may be said that it is not lawful to sell or offer for sale any milk that is not fresh or wholesome, or that has been watered, adulterated, reduced, or charged, in any respect, by the addition of water or any other substance, or by the removal of cream.

Adulterated milk is held to include (1) milk containing less than 8·5 per cent. of milk solids other than milk fat; (2) milk containing less than 3 per cent. of fats; (3) milk drawn from animals within fifteen days before or ten days after parturition, (4) milk drawn from cows in a diseased or unhealthy condition; (5) milk from which any part of the cream has been removed; or (6) milk to which has been added water or any preservative substance whatever. As a general rule, it should also be the aim of health officers to keep the general milk supply below 100,000 bacteria to the cubic centimetre.

Bacterial contamination of milk arises not only from dust, hair, and filth at milking, but also comes from polluted water used by milkers for washing the hands, udders, the milk pails and cans. The drops remaining in the can after rinsing with impure water are sufficient to contaminate all the milk put into the can, and the bacteria introduced into the milk in this way multiply rapidly unless the milk is kept very cold. The danger from polluted milk is not only that there may be microbes present which may cause special diseases, such as typhoid fever, scarlet fever, &c., but also that many bacteria cause changes in the milk which make it injurious to health, particularly to invalids and children. There is no good reason to believe that milk becomes contaminated by the impure water drunk by the cows themselves. This is a widespread but erroneous belief.

In most cities of the world the sale of milk is regulated by law. In this connection various chemical standards have been proposed. The legal standard under the Queensland Health Act requires a milk to contain at least 3 per cent. of fat and 8 5 per cent. solids not fat. Now, it has frequently been contended by milk vendors and farmers that these standards are too high. Compared with the standards of other countries, and, indeed, with those of other States of the Commonwealth, it would appear that the Queensland standard is too low. In the United States 3·25 per cent. of fat, 8·5 per cent. of solids not fat, and 12 per cent. of solids represent the minimum standards. In many of the States—viz., Columbia, Georgia, Maryland, and New Hampshire—a standard of 3.5 per cent. fat is insisted upon.

In Massachusetts 13 per cent. total solids, 9·3 solids not fat, and 3·7 fat, in winter, and 12 per cent. total solids, 3 per cent. fat, and 9 per cent. solids not fat, in summer, are the standards required.

To come nearer home, the legal standard for milk in the State of Victoria of this Commonwealth is not less than 12 per cent. total solids, 8·5 per cent. of solids not fat, 3·3 per cent. of milk fat, and not more than 1 per cent. of ash.

In New Zealand the standard is 12 per cent. solids, 8·5 per cent. solids not fat, and 3·25 per cent. of milk fats.

At the present time a movement is on foot to obtain an uniform standard of 3·5 per cent. milk fat throughout the Commonwealth. It will be seen, therefore, that the 3 per cent. standard of milk fat, under the Queensland Health Regulation, is as low as it is advisable to make it.

For milk farmers and others to contend, as they frequently do, that this standard is too high, is to speak in ignorance and not from knowledge.

It is a remarkable fact that of some thirty prosecutions, undertaken or pending, by the Health Department during the last few months no one offender was fined for not prescribing to the 3 per cent. fat standard. As a matter of fact, in the majority of cases the fats approached nearer 4 than 3 per cent.

Of some hundreds of samples of milk analysed by the Government Analyst during the past few years an average of 4 per cent. fat was obtained. There should be no difficulty, therefore, in reaching the 3 per cent. standard, and I believe there is no legitimate difficulty.

With regard to the legal standard for solids not fat—viz., 8·5 per cent.—I regret to say the position is far from satisfactory. The poorest of pure milk should contain 8·5 per cent. of non-fatty solids.

The addition of water to milk lowers the specific gravity, the index of refraction, and causes diminution in the amount of fat, total solids, and ash.

The addition of water to milk is not infrequently a serious menace to the public health; it is a fraudulent practice which should be put down, and one which the Department is determined to stop. Since June last some twenty prosecutions have been instituted by the officers of the Department against offenders.

Various fines, from £2 2s. to £10, and costs, have been inflicted, and a dozen or more prosecutions for the same offence are now pending. These prosecutions are in addition to those instituted by the Brisbane City Council, whose officers, I am pleased to state, are co-operating in every way with the Department in its effort to secure a pure milk supply for this city.

The action of the city municipal authorities is in marked contrast to the apathy still displayed by many other local authorities in this matter.

I have said that the watering of milk is a fraudulent practice, and in illustration of this statement I may quote the following excerpt from the Government Analyst's report furnished me on 10th August last:—

Mr. Henderson says: "Eighty-one samples of fresh milk were submitted for analysis, fifteen being for butter fat only, and all passing the 3 per cent. limit. Of the remaining sixty-six samples, thirty-seven (equivalent to 56 per cent.) failed to pass the legal standard for solids not fat, varying in proportion of indicated added water from 1 to 19 per cent., with an average of 8·7 per cent."

If the ordinary average standard of 8·9 per cent. of non-fatty solids be taken, instead of the low legal one, then only nine samples would be considered pure, leaving 57 samples (or over 86 per cent.) more or less adulterated with water, the average amount of added water being almost exactly 10 per cent. on this standard.

Taking all the samples submitted, pure and adulterated, and averaging the added water over the lot on the 8·9 per cent. solids not fat basis, which is certainly not too high for Queensland, the amount becomes 8·4 per cent.

Mr. Thornhill Weedon, Government Statistician, has kindly estimated for me the probable annual consumption of milk in Brisbane and suburbs, which he makes out to be 1,500,000 gallons. At 4d. per quart this gives £100,000 as the value of the year's milk supply.

If the samples taken by the inspectors are fairly representative of the whole supply, then the milk contains on an average 8·4 per cent. of added water, and the public are paying not less than £8,400 per annum for added water. As the total fines and costs for adulterating milk last year did not reach £200, there is evidently a big margin for profit in continuing the adulteration in spite of the fines."

It has recently been contended by a writer in one of the morning daily papers that—"when milk is being delivered the jolting and vibrations of the cart cause it to churn. Some milk is more easily churned than others—namely, milk rich in fat contents, or milk in which the fat globules are large, such as in Jerseys, Guernseys, on their grade's samples. The butter formed by this churning rises to the surface and floats there out of reach of the milk tap, thus depriving the milk below of a large proportion of its fat and solid contents, therefore raising the percentage of water in the milk left and greatly curtailing its keeping qualities."

From the above the writer then seeks to draw the moral that it is thus "easy for a milkman to err and be convicted, yet to be morally innocent of any fraudulent practices."

The above bit of reasoning, if plausible, is totally erroneous and illogical. In the first place, the writer proceeds to show that the churning process deprives that portion of the milk drawn by the inspector, for purposes of analysis, of its "milk fat and solid contents." If this be so, then the samples submitted to the analyist should be poor in milk fat. Is this so? On the contrary, the analyst says that all the samples reached the 3 per cent. limit, while many were above it. Of the thirty prosecutions already undertaken or now pending for the addition of water to milk, not one offender in this direction could be prosecuted for failing to comply with the 3 per cent. standard. A large number of the "watered milks" contained even 4 per cent. or over of milk fat.

Then, again, the writer of the article in question knows little, apparently, of the chemistry of milk when he states that the solid contents float on the top. How do the solids get out of solution? The milk serum cannot be altered by the process he suggests, and, therefore, could not possibly alter the percentage of the water in the milk. As a matter of fact, his churning process should reduce the amount of fat and increase the non-fatty solids, and, consequently, show *no* "*added water*." His method of testing the "excess of water" also if ready is at least crude, and not the scientific method adopted by any qualified analyst of experience. Ordinarily it is not difficult to determine whether a given sample of milk has been watered. This is done by comparing its specific gravity and refractometer reading, together with the amounts of fat, total solids, and ash, with those of normal milk or with standards which have been based upon the results of thousands of analyses and years of experience with the milk of different herds of dairy cows and that produced in different countries. The freezing point of milk is also a most valuable indication as to added water. The once common practice in this State of adding preservatives to the milk has now ceased, largely, no doubt, due to the prosecution of offenders as well as to the riper knowledge and experience of milk vendors as to the real significance of this form of milk adulteration and its possible dangers.

There are a number of other sanitary problems connected with the production of milk which have an important bearing on the public health, as, for example, the chemistry of milk, the physiology, the toxicology, and the parasitology of this important food of the community. Time and space, however, would not permit me to deal with these interesting matters here.

I have endeavoured to deal only with the general question of the milk supply.

The point to remember is that milk is, as at present supplied, generally speaking, unclean.

What is the best to do under the circumstances?

It is no answer to suggest the usual platitude that a pure milk supply should be provided—such is the counsel of perfection.

The common-sense view would appear to be to take precautions to prevent, as far as possible, the dangers that must arise from using unclean milk, unclean milk-receiving utensils, and unclean storerooms.

Preventive measures are better than corrective ones. If milk be produced under clean conditions, and kept clean, it should not require to be purified.

The principal reason why the average commercial milk of large cities is not a safe food is the ignorance and indifference of many engaged in the dairy business, filthy cow-yards and cow-houses, unclean and unhealthy cows, unclean milk-containers, careless and frequent handling of the cans, and long transportation.

In many cities of the old world the milk supplied to the retail trade is delivered in sterilised glass bottles. A newer innovation in America and Great Britain is the use of sterilised paper bottles to customers. The milk supply of some large cities is also subjected to commercial pasteurisation daily, but one of the chief objections to pasteurisation is that it promotes carelessness and discourages the efforts to produce clean milk. It nevertheless prevents much disease and death, especially in infants during the summer months.

Both in Europe and America the movement for the supply of sanitary milk has now become a considerable one.

In England the Municipal Milk Depôts at Liverpool, Battersea, Bradford, and the Rotch system are doing great service.

During the past few days I have learned with much pleasure that a company is being formed in Brisbane, the directors of which are well-known citizens and dairymen, to establish a depôt for the distribution of wholesome and unadulterated milk to the citizens of Brisbane and suburbs. This is a step in the right direction.

An abstract of the work performed by the inspectorial staff during the years 1901-8 will be found in the Report of the Chief Inspector (Mr. Simpson) in Appendix A.

From this Report it will be seen that the work of the Department is increasing year by year. The degree of progress each local governing body is making in the promotion and protection of the public health within its own area may be gathered from this Report.

As in former years, efficiency, with due regard to economy, has been kept steadily in view.

I have, &c.,
B. BURNETT HAM, M.D., D.P.H. (Camb.),
Commissioner of Public Health.

APPENDIX A.

Department of Public Health, Queensland,
Brisbane, 9th September, 1908.

SIR,—In submitting this *résumé* of the work carried out by the inspectorial branch of the Health Department since its inception in 1901 to the end of the financial year, 30th June, 1908, I have the honour to again invite your attention to the amount of work carried out under my supervision during the period mentioned.

The period has been one of slow but steady progress, and much useful work has been accomplished in almost all parts of the State, such as the construction of main and sectional sewers, concrete water-channelling, the remedying of defective drainage, the disinfection of premises, and the abatement of nuisances. Many of the natural storm-water channels that had been converted into sewers, and unformed water-tables receiving domestic sewage, have become inoffensive since the completion of these works. The disposal of household wastes is becoming a serious question both in town and the more thickly settled country places. The erection of new buildings is going on apace, and the local authorities cannot much longer evade the responsibility of providing for the efficient drainage of their respective areas.

Much could be accomplished at little cost to abate many of the existing nuisances arising from the causes referred to, the plea of the want of funds being generally urged by the local authorities as an excuse for their inaction.

KINGFISHER CREEK.

Continuous outbreaks of typhoid fever occurred along the route of this sewer and in its immediate neighbourhood. The Commissioner of Public Health being satisfied that this was one of the contributing causes, instructed the South Brisbane Council to abate this menace to public health. The council took the matter in hand, with the result that this open sewer has been much improved by the construction of intercepting sewers and the erection of flood-gates, which are utilised for scouring out the sewer with the impounded water. The nuisance can, however, be finally abated only by the construction of a proper sewer through Norman Park Estate to the river.

Numerous nuisances have also been abated within the Shire of Windsor, by the building of new main sewers and the extension of existing ones.

INTIMATION OF NUISANCE NOTICES.

A grand total of 2,562 intimation of nuisance notices has been forwarded to various local authorities within the State, calling attention to nuisances requiring abatement. The great majority of these has failed to influence the apathy of the local authorities.

VISITS OF INSPECTION.

Within the Metropolitan Area 20,227 visits of inspection have been made by officers of the Department, and numerous complaints in writing have also received attention.

SPECIAL INSPECTIONS.

Large numbers of the dairies have been inspected. Those outside the city of Brisbane were all in a clean condition generally. I noted the absence of appliances for the scalding and sterilising of milking pails and utensils. The existence of town dairies and cow-yards upon small allotments should be abolished; the registration clauses are not sufficiently wide in their scope.

On various occasions the Commissioner of Public Health has been accompanied by officers of the Department on rounds of inspection to some of the more insanitary suburban areas. Good has generally resulted from such inspection.

The piggeries kept by aliens and others within the area have also been inspected.

Repeated outbreaks of enteric fever have occurred within His Majesty's Prison, Annerley road, South Brisbane. These have been the subject of special inquiry and inspection.

KEDRON BROOK.

By direction of the Commissioner a special inspection was made of all the tanneries, fellmongeries, and woolscouring establishments situated within the watershed of Kedron Brook, and suggestions offered for minimising the pollution of this stream.

"*The Health Act of* 1900" requires to be very much amplified regarding the pollution of rivers. In the interests of the people at large the few running streams or rivers that exist in Queensland ought to be protected with the utmost rigour of the law.

A yearly inspection of bakeries and jam preserving factories is carried out when the exigencies of the Department permit. Sanitary and other defects are noted, and the requisite action taken to remedy same. It is gratifying to note that in the majority of instances we find the above-mentioned industries carried on in clean surroundings.

BUTCHERS' SHOPS, YARDS, AND CASH CARTS.

A special inspection of the slaughter-yards, in conjunction with the inspectors of the Department of Agriculture and Stock, has been made. I found the yards, as a rule, in a satisfactory condition, and those not up to the requirements of the Stock Department have been reconstructed or else removed to more suitable sites.

The retail shops of the trade are kept in good order, and are periodically kalsomined or painted. I have already drawn attention to the manner in which the bodies of meat are carted into town from the slaughter-yards imperfectly protected from blowflies and dust contamination.

Improvement in this direction is most desirable. A special inspection of all the cash carts plying in and around Brisbane has also been made as the result of a deputation from the Master Butchers' Association to the Commissioner of Public Health. A report on this matter has been submitted. If any grievance exists, or harm is done to the trade by these carts, the Association controls the matter, as some of the principals run carts of this description themselves. Taken collectively, these carts were all in a scrupulously clean condition, though some of their exteriors would be none the worse for a coat of paint.

LICENSED VICTUALLERS.

Periodic inspections of all the licensed victuallers' premises, as well as those of fish and oyster saloons, are carried out by a departmental health officer, accompanied by an inspector.

SEASIDE CAMPS.

Inspections of the various holiday camping resorts have been made from time to time, their sanitary requirements noted, and the local authorities concerned notified.

HYGIENIC COURT.

An instructive and highly educative display, embracing the wide field of public health, was organised by the Commissioner of Public Health at the National Exhibition in Brisbane in 1906, and created a most favourable and lasting impression on the minds of the public. A similar exhibit was also prepared and exhibited at Toowoomba in 1907.

SCHOOL HYGIENE.

All the schools within the Metropolitan Area have been inspected, and as a result numerous sanitary defects remedied. While investigating outbreaks of typhoid fever among scholars attending some of the schools, the officers of the Department of Public Health removed rain water tanks from their stands and cleansed and disinfected them, and in the process removed bucketfuls of dead frogs and mud, the water in the tanks being absolutely unfit for drinking.

An automatic cleansing apparatus, obtainable at a small cost, should be fitted to every tank. Tanks should also be protected by conical covers extending their full width, especially when fixed underneath school verandas with shot-edged flooring, where mud and filth can pass freely through the joints, and thus contaminate the water. These covers would also prevent mischievous boys throwing their scraps of lunches and other rubbish on to the tops of the tanks, which I have repeatedly found when on my rounds of inspection. Diphtheria of a mild kind being prevalent in numbers of the schools, Dr. H. Chesson, acting departmental officer, by direction of the Commissioner, made an inspection of the various schools affected, and, in order to stem a more serious outbreak, the Commissioner ordered the whole of the schools within the Brisbane area to be thoroughly cleansed and disinfected.

It being within a few days of the annual holidays, the schools were closed by the Education Department in order to expedite the work. The work was done under my direction, and forty-eight schools were rendered fit for occupancy.

SANITARY DISINFECTION AND INFECTIOUS DISEASES.

Typhoid fever and diphtheria are still prevalent within the Metropolitan Area, and occasional cases of scarlet fever and measles are reported.

The large number of phthisical cases notified annually to the Department proves that this insiduous disease is more widespread than the general public are aware of.

Since the abolition of the Metropolitan Joint Board for the Prevention of Infectious Diseases, the whole of the disinfection of infected premises in the area has been carried out by this Department, except in the town of Toowong and the Shires of Coorparoo and Sherwood. Since this work has been taken over by the Health Department 3,457 premises have been disinfected.

The various authorities concerned agree to pay a stated charge according to the number of rooms disinfected, which arrangement has this advantage: that the work is promptly and efficiently performed. The loss to wage-earners and their families, and to the people generally, due to recurrence of infectious diseases in all parts of the State, has not yet awakened provincial local authorities to their responsibilities, as proved by their apathetic neglect in adopting any measures for the efficient disinfection and cleansing of premises, or improving the sanitary circumstances when such outbreaks occur. Wherever local apathy has compelled the Commissioner of Public Health to take steps to stamp out preventable disease, a marked diminution in the number of cases always follows.

A departmental staff nurse is engaged in connection with phthisical cases, who visits the sick and instructs the patients and their friends in the necessary precautions.

The visits of the nurse are invariably welcomed.

The conveyances used for the transport of lepers from the landward parts of the State have in every instance been disinfected by an officer of the Department. The steamer used for conveying the leper patients from the Northern station to the new Lazarette at Peel Island was thoroughly fumigated and disinfected.

Each succeeding year has witnessed fresh outbreaks of plague, and but for the vigilance of this Department it may be safely assumed that the incidence and mortality of this disease would have assumed formidable proportions. It was necessary for the Commissioner at certain periods to force, by Order in Council, the municipal authorities of North and South Brisbane to thoroughly cleanse part of those areas that had been declared infected. The work was placed under my personal supervision. The gang was augmented, and a crusade of rat extermination vigorously prosecuted simultaneously with that of the cleansing. A flock factory in South Brisbane, certified to be in such a condition as to render it impossible of proper fumigation, was destroyed by fire along with the old rags and flock, under the supervision of the South Brisbane Fire Brigade. As a result of the cleansing operations, 2,300 loads of filth were removed from North Brisbane and 992 loads from South Brisbane, and dumped at sea, besides large quantities destroyed by fire.

RAT DESTRUCTION.

The number of men employed on the rat-destruction gang has varied from time to time, and was finally reduced to eleven men, including the foreman. Excellent work has been accomplished by these men. Premises where formerly hundreds of rats could be caught at regular intervals are now practically free from these plague-carrying vermin.

During the course of these operations it is often necessary to open out rat-burrows to their end for the purpose of destroying breeding places and disinfecting runs. It frequently happens that these burrows lead to defective drains and sewers of which the local authorities have no records. When this occurs departmental action is taken to have these defects made good. Buildings used as produce stores have in some instances been made rat-proof at the instigation of the Commissioner of Public Health. The number of rodents accounted for by the gang since the year 1900 up to the 30th June, 1908, amounts to a grand total of 162,082, of which number 82,592 rats and 12,277 mice were examined. Of this number 1,004 rats and 6 mice were found to be plague-infected.

The crusade of rat-destruction has been ceaselessly waged along the river fronts as far as the Doughboy and Hamilton training-walls, and underneath the shipping companies' wharves. Since the inception of the Department 4 tons 3 cwt. 8 lb. of phosphorous poison have been manufactured and used by the Department's gang in various parts of the State. Besides large quantities of strychnine and arsenical poison, 66,320 Danysz virus baits have also been prepared by Mr. Pound, Government Bacteriologist, and laid by the Brisbane gang. Since the laying of these baits, 674 rats have been found to be infected with Danysz disease. Three thousand two hundred and thirty-one gallons of Miscible carbolic have also been manufactured by an officer of the Department for use in various parts of the State for disinfecting purposes, and large quantities have been supplied to various Government departments within the State. By the foresight of the secretary of the Department, the making of sulphur candles has been undertaken by the Department. This will result in a saving of several hundred pounds per annum.

SHIPPING REGULATIONS.

The shipping regulations have practically been enforced during the whole period under observation, the wharves and shipping, while the regulations are in operation, being constantly under the supervision of an officer of the Department. One thousand and fifty-seven vessels of all kinds have been fumigated in accordance with the Plague, Cholera, and Smallpox Regulations. Fifteen hundred and eighty-nine fending off certificates have also been issued to shipmasters to certify that they had conformed with the regulations.

FOOD AND DRUGS.

This part of my duty, for want of adequate assistance and pressure of other work, has not received the attention that its importance warrants, but now that much of the urgent work within the Metropolitan Area has either been completed or else received some attention, I have been able in consequence to put forth a more sustained effort in this direction during the past four months. Since the Department was brought into existence, some 362 tons 2 cwt. 2 qr. 8 lb. of foodstuffs have been seized and destroyed in various parts of the State by officers of the Department. Meanwhile two officers are carrying out a pure food crusade in the South-western district of the State.

CONSERVANCY SYSTEMS.

The absence of proper services for the collection and disposal of nightsoil in numbers of the component local authorities within the Metropolitan Area received the early attention of the Commissioner. Action was accordingly taken, and sanitary depôts were selected and approved of for their use. In the following shires and towns the pan service has been initiated:—

Balmoral, duplicate pan system.
Coorparoo, single pan; dump cart burial.
Hamilton, duplicate pan system; sea burial.
Ithaca, duplicate pan system; sea burial.
Stephens, duplicate pan system; burial.
Sandgate, duplicate pan system; burial.
Taringa, duplicate pans; sea burial.
Toombul, duplicate pans; sea burial.
Windsor, duplicate pans; sea burial.
Wynnum, duplicate pan; burial.
Booroodabin, duplicate pans; now incorporated with the city of North Brisbane.

BABY FARMING.

In some instances the sanitary circumstances of premises where infants are boarded out have received the attention of this Department.

This phase of our social question requires more attention than can possibly be given with the small staff of inspectors at present at my disposal. Though the police authorities have been entrusted with the work, I feel that the Health Department is not wholly exonerated, seeing that the department under whose control the nursing homes are now placed have no officers competent to express opinions on sanitary matters, which must necessarily affect the health of the infants boarded out in the various nursing homes throughout the State.

COMFORT STATIONS.

I cannot refrain from drawing your attention to the almost total absence of adequate sanitary conveniences for both sexes within the metropolis and other large towns throughout the State, and, even though a sewerage system for Greater Brisbane should be unavoidably postponed, the local authorities should move in this matter, as it is most undesirable for ladies to have to use the existing obsolete conveniences within the city of Brisbane.

Adverse comments are heard on every side, especially at Exhibition time, from country people and Southern visitors, regarding the marked absence of these conveniences.

OTHER PARTS OF THE STATE.

In the early stages of the Department's existence, much time and attention had to be devoted to insanitary conditions then prevailing within the Metropolitan Area, and to the energy displayed by the Commissioner of Public Health is due the marked improvement that has taken place, though much yet remains to be done.

Should the contemplated sewage scheme be brought to a successful issue, the Department will be enabled to devote more time to outlying parts of the State, though it cannot be said that they have been wholly neglected, as the following brief *précis* of the work done and the places inspected will demonstrate.

Forty thousand seven hundred and sixty district visits of inspection have been made, as it is a rule strictly adhered to that in every town inspected a house-to-house inspection is carried out. In numbers of the places enumerated in this Report, subsequent visits of inspection have been necessary, and the inspections repeated. It will, therefore, be seen that the number of inspections made by officers of the Department has been larger than the figures taken credit for.

Provincial towns in most cases are very similar in their sanitary circumstances. There is generally an absence of a conservancy system either for the collection and disposal of nightsoil or garbage, no drainage, and wells from which water is obtained for domestic use in close proximity to full overflowing or disused cesspits. It frequently happens that people desirous of improved conditions undertake the disposal of waste matter, produced in their household, within their own allotments. The danger to health, as also the delicate obligations forced upon householders under these circumstances, very often in the absence of a male person, are inimical and injurious to the welfare of both individual and community.

The local authorities sometimes pride themselves on the healthy state of their areas, but in numerous instances this cannot be attributed to any measures of their own initiation to foster these conditions, but rather to clear sunshine and other climatic conditions.

SPECIFICATIONS AND SCHEDULES OF SANITARY CONTRACTS.

For the guidance of local authorities desirous of the information, specifications and schedules of sanitary contracts have been prepared, and are available when application is made for them. Every schedule supplied is drawn up to suit the local requirements of the district for which it is intended. The following local authorities have received such:—Allora Shire Council, Balonne Shire Council, Brassall Shire Council, Bowen Town Council, Childers Shire Council, Calliope Shire Council, Howard Shire Council, Mackay Town Council, Purga Shire Council, Rosewood Shire Council, Walsh Shire Council.

Instructions are at the same time sent for the guidance of nightmen, with plans of all buildings required in a sanitary depôt, the probable cost of initiating a sanitary service, and the revenue to be derived from the working are also given.

The Department has of late been frequently consulted regarding the disposal of sewage from hospitals, institutions, and private residences. In some instances plans have been prepared and other advice given.

At the instigation of the Commissioner of Public Health, the following places have been provided with *sanitary systems*, or the existing ones improved:—Bundaberg, Bowen, Liverpool and Workshops Estates within the Shire of Brassall, the villages of Newtown and Silkstone within the Shire of Bundanba, Bundaberg, Charters Towers, Forest Hill within the Shire of Laidley, Gladstone, Ipswich, Laidley, Mackay, Mount Morgan, Newtown within the Shire of Gowrie, the villages of Blackstone, New Chum, St. Helens, and Dinmore within the Shire of Purga, Toowoomba, Warwick, Killarney, and Queenton.

Sanitary paddocks have also been selected suitable for the burial of nightsoil for numerous local authorities throughout the State.

Rubbish-removal systems have been enforced by the Commissioner of Public Health in the following towns, or he has insisted that the scavenging arrangements should be more efficiently carried out, viz.:—Bundaberg, Rockhampton, Mackay, Townsville, Maryborough, Queenton, and Charters Towers. The following towns have been thoroughly scavenged by direction of the Commissioner of Public Health, and 6,574 loads of garbage disposed of:—Childers, Chillagoe, Cairns, Geraldton, Irvinebank, Maryborough, Mungana, Stannary Hills, Toowoomba, and Townsville.

SOUTH COAST AND SOUTH-WESTERN DISTRICTS.

NERANG AND SOUTHPORT.

Inspectors of the Department have, on various occasions, been despatched to these places in connection with nuisances affecting public health, and have met with gratifying results. Premises have also been disinfected wherein infectious diseases have occurred.

BEENLEIGH.

Recurring outbreaks of typhoid fever having occurred in Beenleigh, in compliance with instructions I proceeded to that place for the purpose of ascertaining the cause. As a result I ascertained that the Council had failed to carry out the recommendations made to them; in consequence the fever continued to manifest itself. Subsequent inspections were made in connection with the matter by Dr. Woolrabe, Health Officer of the Department, but it was not until further remonstrances were made by the Commissioner that the Council took any steps to remedy the existing state of affairs. The main sewer of the town was greatly improved and a sanitary system installed, and stricter supervision exercised by the local authority in matters pertaining to public health.

BEAUDESERT.

The Shire Council has been called upon to adopt measures for the sanitary betterment of the township.

SHIRES OF PURGA, BUNDANBA, AND BRASSALL.

These three shires are contiguous with the town of Ipswich. Towards the end of 1904 typhoid fever of a virulent character was raging in the Blackstone Colliery area, within the Shire of Purga. The Commissioner of Public Health instructed the then Departmental Health Officer and myself to make a joint inspection and report. As a corollary to this a sanitary service for the collection and disposal of nightsoil and refuse was ordered by the Commissioner for the townships of Blackstone, New Chum, St. Helens, Dinmore, all within this shire. Much opposition to this step was evinced by the Shire Council, and passive resistance is still being encountered by the sanitary contractor both there and in Bundanba, and although the contract provided for a weekly service, there are some 354 houses attended to once a fortnight, and only 73 weekly. There is unmistakable evidence that people are disposing of their nightsoil on their own premises to save the sanitary rate.

Fever was also rife in Newtown and Silkstone, within the Shire of Bundanba, at the same time as in the adjoining village of Blackstone. The sanitary circumstances of these villages warranted the introduction of enlightened methods of dealing with the waste products of the communities. A request for the adoption of the pan system by the Shire Council was, after some delay, ultimately brought about. Since the people have, to a great extent, been prevented from disposing of the contents of the old kerosene tins, that served for closet pans, upon their small allotments, and the use of cesspits has been discontinued, fever has not been so prevalent as hitherto.

GOODNA.

In compliance with a request from the Chairman and Council of the Shire of Purga in the month of December, 1904, for the services of an inspector to inspect and select a site for a sanitary depôt within this township, I was instructed to proceed there and meet a deputation of the Council for this purpose. A subsequent inspection was also carried out, when I was accompanied by Dr. Woolrabe, Departmental Health Officer. We made a joint inspection of the town, and found large quantities of rubbish lying about. Typhoid fever has appeared in this township, and a petition has been sent by the residents to the Shire Council regarding the sanitary condition of the place.

BRASSALL.

Petitions and complaints used to be frequently received from the residents of Liverpool, Raymond's Hill, and the Horne Estates, within the Shire of Brassall, all adjacent to each other, regarding the general insanitary state of this community and the apathy of the Shire Council concerning health matters. The estates above referred to are in close proximity to the Government Railway Workshops, Ipswich, and the districts are becoming more thickly populated every year. By direction of the Commissioner a rubbish-removal and sanitary service on the duplicate pan system are now in force within this part of the shire. The subsequent decrease in the incidence of febrile disease justified the measures insisted on by the Department of Public Health.

THE TOWN OF IPSWICH.

The town of Ipswich has made great advance in matters pertaining to public health, though the question of an infectious diseases hospital is yet unsettled. New main outlet sewers have been constructed, and subsidiary drains and sewers laid where most required. Increased storage reservoir accommodation has also been provided, thus ensuring a plentiful public water supply. Prior to departmental action being taken, the conservancy system was most unsatisfactory and was the source of grievous complaint to the Department. Instructions were issued by the Commissioner, and the Council made to realise its responsibilities. A new sanitary service was forthwith initiated, and the services of the three private contractors, who were in no way responsible to the Council, were dispensed with. A sanitary depôt was selected for their use, and the work of burial carried out in conformity with the most approved hygienic principles.

Repeated outbreaks of plague have occurred from time to time and been stamped out by the officers of the Department, working in conjunction with those of the municipality. During one of these visitations the town was thorougly scavenged, under my own supervision, and several hundred loads of garbage disposed of. Concurrent with the introduction of the sanitary system a rubbish-removal contract was also entered upon, and since then the town has been kept in a very clean condition.

The garbage is being utilised to fill up the bed of a disused watercourse, which makes a deep depression on a roadway crossing, formerly known as the "Devil's Gully." The rubbish is properly buried and no nuisance created, and until a refuse destructor is erected, at some future date, I am of opinion that this is the most economical and useful way of disposal. Numbers of septic tanks for the treatment of domestic and other drainage have been fitted at the hospital institutions and Government Railway Workshops. The tank at the latter place having become inoperative, I have recommended alterations which I trust will prove beneficial. To the active measures adopted by the Commissioner may be attributed the satisfactory state of this community.

BOONAH.

Outbreaks of typhoid fever having taken place within this township in the month of January, 1906, I proceeded there, under instructions from the Commissioner of Public Health, for the purpose of stamping it out. The premises concerned were thoroughly cleansed and fumigated. The cesspits at the schools were closed, and a pan service initiated by direction of the Commissioner. Special inspections have also been undertaken regarding the establishment of pig saleyards within the town, which were allowed subject to the observance of certain conditions.

MOUNT BEPPO, ESK.

An outbreak of typhoid fever occurred at a farm at Mount Beppo, within the jurisdiction of the Esk Shire Council. There being no hospital nearer than Ipswich, and the patients being in such a condition that it would have been dangerous to remove them, the Department forwarded a hospital tent for the proper isolation of the patients, as well as instructions regarding the precautionary measures to be adopted in order to prevent the spread of the infection.

LAIDLEY.

A sanitary service has now been in operation for some years. Their depôt is conducted on good lines, and is conveniently situated for the use of the residents of Forest Hill, who, I believe, have their wants attended to by the Laidley contractor. Though the Shire Council was called upon to clean up the town of Laidley and initiate a rubbish-removal system at the time referred to, nothing has been done in this connection.

ROSEWOOD AND MUTDAPILLY.

In accordance with instructions I made a sanitary inspection of the town, part of which was prior to the alteration of the boundary within the Shire of Mutdapilly. As a result of this inspection the Rosewood Shire Council were called upon to initiate a rubbish removal and sanitary system. The fullest information and assistance possible were afforded this Council. A case of plague occurred at Lanefield, about a mile out of Rosewood. The house was fumigated by an officer of the Department, who also disinfected and cleansed the premises.

TOOWOOMBA—SHIRES OF GOWRIE AND MIDDLE RIDGE.

In compliance with instructions I made a house-to-house inspection of the town, and found it to be in a dirty condition. The Commissioner of Public Health called upon the Council to clean the town, and the mayor having asked for departmental assistance, the operations were placed under my supervision, and 600 loads of household garbage and trade refuse were collected and disposed of. About this time a new sanitary contract was entered into, the terms of contract calling for the erection of a Meldrum Destructor for the disposal of nightsoil and garbage by fire. Prior to this contract cesspits were in use throughout the town, but for some reason known best to the Council itself they have not extended the contract to the whole of the municipality. Some hundreds of houses still retain the cesspits or bury their contents of the closet pans on their own allotments, having neither sanitary nor rubbish removal services; and yet this local authority has persuaded itself into the belief that this town is the sanatorium of Queensland. As far back as 1901 the Commissioner recommended the abolition of all cesspits within the municipality in the interests of the health of the community. Nevertheless, this town is now in a much better condition, judged from a sanitary standpoint, than when first it came under the notice of the Commissioner of Public Health. The drainage of the town ultimately finds its way into Gowrie Creek, but undergoes no purification before being discharged into this watercourse. A new water supply is in course of construction, and it is to be hoped that the local authority will select a site less liable to contamination than the existing well from which the present supply is obtained. During an outbreak of typhoid fever in the year 1904, the cleansing of the town was deemed necessary by the Commissioner of Public Health. Accordingly, the work was placed under my personal charge, and a house-to-house inspection was made. As a result, more than 600 loads of garbage were removed, 439 notices were served on people to clean up their premises, and in numerous instances the Council had to undertake this work in default of the owner or occupier.

While on duty at Toowoomba advantage was taken of the opportunity to make a detailed inspection of that part of Gowrie Shire contiguous to the above city. This inspection resulted in the Shire Council having to provide an up-to-date sanitary service for this part of the shire. The new order of things called for the abolition of all cesspits, which were either emptied of their contents or otherwise dealt with in order to render them harmless.

Typhoid fever has been less prevalent in Toowoomba and district since the introduction of the pan system.

CLIFTON.

I proceeded to Clifton in the month of June, 1906, for the purpose of advising them concerning their proposed sanitary contract. After several sites had been inspected, I chose one from among those suitable for their requirements. Opposition having been raised to the use of the proposed paddock, the Council again asked for the services of another inspector to inspect a site. Accordingly I again made an inspection and selection, yet the opposition continues. A final appeal has been made to the Commissioner of Public Health to settle this vexed question for the Council, the local authority binding itself to accept his decision as final.

A fatal case of plague occurred in Clifton, which was taken charge of by the Department. The matron and nurses from Colmslie Hospital were sent from Brisbane to nurse the patient. Dr. Woolrabe, Departmental Health Officer, had charge of the case, accompanied by an inspector, who also inspected the township, and two men were detailed from the rat gang to carry out a crusade of rat destruction.

ALLORA.

Recurring outbreaks of enteric fever have taken place in this pastoral township, many cases being fatal. In the year 1902 it was deemed advisable in the interests of public health that something should be done in the matter, and I was therefore deputed to make an inspection and furnish a report. Following this the Council was called upon to initiate a sanitary and rubbish removal system. I examined several sites and selected one suitable for the burial of their sanitary matter and the disposal of the refuse of the town. The Council allowed things to drift until 1906, when I again made an inspection and confirmed my previous action regarding the sanitary station. In order to make certain that the Council would have no excuse for indefinite delay I prepared, at considerable trouble, specifications and schedules for a sanitary contract, an estimate of cost of same, and provided them with plates and drawings of the buildings and general arrangements of a sanitary depot, as well as with written instructions for the guidance of their contractor or nightmen. Even though numbers of the residents have urged that improved methods should be instituted, the Council, so far as I am aware, is still dallying with the question. The records of the Council show that the first case of typhoid in Allora occurred in 1898. In the year 1884 the Government Hydraulic Engineer took levels and prepared a scheme for the removal of the storm water from the streets of the town, but in this, as in other things, they have done nothing.

WARWICK AND KILLARNEY.

The Town Council of Warwick requested that an officer of this Department should be sent to select a sanitary depôt and to advise them regarding the most approved methods of nightsoil disposal. Accordingly I was despatched for this purpose, and, as is usual in such cases, opposition to the site selected deterred the Council from agreeing to the position. On two subsequent occasions another inspector and Dr. Woolrabe, Health Officer, were ordered by the Commissioner of Public Health to make a fresh selection and settle the matter once for all. It was finally agreed to adhere to the depôt I had approved of as being the most suitable.

I made a house-to-house inspection of the town and found it to be in a comparatively clean condition. Nearly the whole of the drainage discharged into the Condamine River, a short distance above the waterworks pumping station.

Owing to drainage and other contamination I recommended a new water supply. The matter was taken up by the Council, and Mr. Henderson, Government Hydraulic Engineer, made preliminary investigations, but nothing further has come of the matter.

The Commissioner of Public Health also made an examination of some of the proposed sources of water supply, and at the same time held an inquiry into an outbreak of enteric fever that occurred at Killarney. A sanitary inspection of the township was made, and the fullest information placed at the disposal of the Glengallan Shire Council for their guidance.

STANTHORPE.

Stanthorpe was one of the first provincial local authorities to request advice on sanitary matters. I was accordingly sent for the purpose of making a sanitary survey of the township, and to select a sanitary depôt for their use. This town has the reputation of being a very healthy one.

DALBY.

This municipality has had an unenviable reputation for many years for the malodorous emanations arising from the numerous, full, and overflowing cesspits that abound there. Shortly after the inception of the Department of Public Health, complaints were received from residents of the town and from the travelling public. The Commissioner of Public Health being satisfied that good grounds existed for the cause of complaint, instructed me to inspect and report on the township. The Council was in due course called upon to initiate a rubbish and sanitary system, and also to clean up the town. The Town Council adopted the usual policy of inaction so common to local authorities in Queensland, and, as a result, the Commissioner decided that he would visit Dalby and satisfy himself regarding the true state of matters. Advantage was taken of the opportunity, by way of enlightening the Council and the residents generally, to deliver a public lecture on "Sanitation and the Benefits that Accrue from Proper Attention to such Matters." Mr. Pound, Government Bacteriologist, acted as lanternist on the occasion. The Council appeared to be sympathetic, and agreed to the initiation of a sanitary service, and drove the Commissioner around the town in order that he might decide the boundary of the benefited area. Notwithstanding all this, Dalby was still recalcitrant, and nothing was done. The Commissioner, after prolonged notice, made an order compelling the Council to abate the cesspit nuisance. For some reason the order has been rendered inoperative. I would again take this opportunity of emphasising the necessity for action in this matter, as I have been repeatedly twitted, when making suggestions regarding matters in various towns, that "they would do so when Dalby did it." So recently as the 25th August my attention was again drawn to the insanitary condition of this municipality.

Pittsworth and Oakey.

An inspector of this Department was despatched to inquire into the insanitary conditions obtaining within the townships of Pittsworth and Oakey. As a result of this inquiry, the Commissioner called upon the Jondaryan Shire Council to abolish all cesspits and generally to adopt improved methods for dealing with the waste matter and drainage of these communities.

Warra and Chinchilla.

These rising townships were found to be in a most insanitary state. The Commissioner called upon the Wambo Shire Council to initiate proper sanitary services for both places, and supplied them with all the necessary information for their guidance, and also to abate certain nuisances particularlised in his communication to the local authority.

St. George.

For a number of years recurring outbreaks of typhoid fever have taken place in this township. The Balonne Shire Council becoming alarmed, requested assistance. An officer of the Department was despatched to report on the matter. The shire clerk visited Brisbane in order to interview the Commissioner, and all necessary information was at that time supplied to the Council concerning the initiation of a sanitary and rubbish removal system. Full instructions were also afforded the Council regarding the best methods of disinfection, the cost of the necessary appliances, and where they were to be procured. During the year 1907 there was only one case of typhoid fever treated in the St. George Hospital; the year previous thirty-six cases were reported.

Yeulba.

While an officer of this Department was in the vicinity of this town he embraced the opportunity of making an inspection of the township. He reported the absence of proper sanitary conditions. Cesspits were sunk in stiff clay, full, and overflowing, and were constantly washed out in some parts of the town during heavy rainfall. Underground rain water tanks were sunk in close proximity to these cesspits, with slabbed sides to prevent them tumbling. There was no rubbish removal system in force.

The offices of the Warroo Shire Council being at Surat, no official information could be obtained at the time regarding the incidence of infectious disease.

WIDE BAY AND BURNETT DISTRICTS.

North Pine.

On various occasions outbreaks of scarlet fever, diphtheria, and plague have occurred in this district. Prompt measures have in every case been taken by the Commissioner to prevent the spread of these outbreaks. Departmental officers were sent to carry out the preventive measures.

Terrors Creek and Caboolture.

An officer of the Department was despatched early this year for the purpose of inquiring into an outbreak of typhoid fever at these places. They were found to be in an insanitary condition. The local authority has under consideration the inauguration of an improved sanitary system.

Nambour.

Scarlet fever and diphtheria having manifested themselves within this district, an officer was despatched to supervise and direct the disinfection of the premises wherein the cases occurred.

A case of leprosy having been disclosed to the Department, the Commissioner took all necessary steps with regard to the premises occupied by the infected person.

Gympie.

Complaints having been received regarding the sanitary conditions of this important town, and the contamination of the Mary River by the discharge of mining waste matter into the stream, an officer of the Department was despatched to make an inspection and furnish a report. Briefly stated, it was found that the sanitary service was on the duplicate pan principle, the service being carried out weekly in the centre of the town, and fortnightly in the suburbs. Out of 2,400 houses and business premises within the town only 120 had their rubbish removed. The drainage of the town was also adversely commented upon. The contamination of the Mary River by cyanide sludge has been permitted to continue for such a length of time that the grazing lands on the valley of the river are alleged to have been irretrievably ruined.

Clermont.

An officer of the Department was instructed to proceed on a visit of inspection to this town. Though a sanitary service on the duplicate pan principle has been installed, the rubbish removal and the drainage system of the town were found to be most unsatisfactory.

NANANGO AND KINGAROY.

An officer of this Department having been despatched to inquire into an alleged nuisance in connection with a butter factory in the district, the opportunity was embraced to make a sanitary inspection of the villages above mentioned. As a result of this inspection the Nanango Shire Council was called on to initiate a sanitary service. Officers have been sent by the Commissioner to select a suitable depôt; but, so far, without results. At the request of the Council I have been instructed to proceed to Nanango at an early date, and, if possible, place the matter on a satisfactory basis.

MARYBOROUGH.

Early in 1903 I was instructed to carry out an inspection of the town and furnish a report. I found a well-organised sanitary and rubbish removal system in force, the work being performed in the daytime, evidently without nuisance or cause for comment. The sanitary station is situated several miles out of town; the nightsoil is consumed by fire. The old paddock is still being used as a rubbish depôt, but is located in a different part of the district from that of the sanitary works. Two years later, in the month of June, 1905, a sudden outbreak of pneumonic plague occurred, which resulted in a high mortality. The Commissioner of Public Health, seized with the gravity of the outbreak, ordered special measures to be taken to deal with the occurrence. The state of panic was allayed, and public confidence restored in the town.

The sanitary crusade was placed under my own personal charge. All plague-infected premises were thoroughly cleansed and fumigated. The General Hospital, where numbers of the patients were lodged prior to the diagnosis of the disease, was placed under strict quarantine for a period of fourteen days. The whole of the hospital buildings, including wards, men's and servants' quarters, as well as the kitchen, sculleries, and outhouses, were thoroughly disinfected and cleansed by employees of the Health Department before being released from quarantine. Several of the nursing staff contracted the disease, and two of the nursing sisters succumbed. A staff of departmental Nurses from Brisbane were in charge of the patients during the latter part of the outbreak. The Plague Hospital was distant 9 miles from the town, and as time was an important factor the old Immigration Depôt was converted into an hospital for the reception of fresh cases and the segregation of contacts while the District Hospital was under quarantine. Much work having to be done, at my suggestion an experienced squad of men was detailed from the departmental rat gang in Brisbane to augment the workmen employed for the occasion by the Town Council. In order to expedite the operations they were broken up into parties under the leadership of our own men. The town was then thoroughly scavenged. Simultaneously with the work of rat destruction, some 200 loads of garbage were collected, disinfected, and disposed of. Two thousand visits of inspection were made by the inspectors of this Department and local authority. The Shipping Regulations for the time being were placed under the inspection of the Health Department and strictly enforced. By order of the Commissioner of Public Health the Town Council appointed a permanent ratcatcher to cope with the work, and he is assisted by the caretaker of the Plague Hospital. The drainage system was in a most insanitary condition, and remains so to the present day. The origin of the outbreak was traced to a large open public sewer, where plague-infected rats were found. This sewer passes through a yard where one of the first patients was employed and where some of the younger members of the same family used to resort.

TINANA.

A desire for better sanitary conditions having been expressed by numbers of the residents of a small country living within this shire, and separated from the Municipality of Maryborough by the Mary River, an inspector of this Department made an inspection, and he reported adversely on the existing conditions. I am of opinion that the residents of the above township could be more economically and efficiently served if they were to be brought under the jurisdiction of the Maryborough Town Council.

HOWARD.

At the request of the Howard Shire Council the services of an inspector and men experienced in the work of rat destruction were requested from the Commissioner of Public Health, at the time of the Childers outbreak, to assist in the work of rat destruction within the township, and to advise the Council on sanitary matters. By his directions I proceeded there on the completion of the work at Childers, and met the Council in conference, and selected a sanitary depôt in order to have everything in readiness for the initiation of the contract. Full information was placed at their disposal, but I am credibly informed that no further steps have been taken in the matter.

CHILDERS.

Just one month before the Maryborough outbreak took place, plague occurred at Childers. The Commissioner of Public Health despatched a Health Officer to undertake any measures found necessary to check the advance of the disease. I was detailed to assist in the work. The town was found to be in a filthy state and overrun with rats. It was decided that the township would have to be cleansed, and active measures taken to destroy the rats. An experienced man was sent from Brisbane to act as ganger during the operations. Five men were placed at my disposal by the Municipal Council, and as the result of our labours a large number of five-horse dray loads of rubbish, equal to 429 ordinary dray loads, were removed and disposed of; ninety similar wagon loads, equal to 270 dray loads, were consumed by fire on the ground to save cartage. Large numbers of rats were caught, some of which were found to be plague-infected. A new sanitary station was selected for the use of the Council, and explicit instructions furnished for the guidance of their new contractor. One fatal case of plague occurred during our stay. A departmental nurse was in charge of the hospital during the outbreak.

BINGERA SUGAR PLANTATION.

In the early part of 1905 a very severe outbreak of typhoid fever occurred on this plantation. By request of Mr. Angus Gibson, M.L.C., the Commissioner of Public Health intrusted the operations to my personal supervision, and the firm loyally co-operated in the work of eradicating the causes of this outbreak. Improved sanitary arrangements have been adopted, and it is pleasing to state that since then no fresh cases have appeared among the hundreds of men or their families who reside on the plantation.

BONA, BRANYAN, AND WATERFORD SUGAR PLANTATIONS.

I was deputed in the beginning of 1907 to inspect the abovenamed properties, and to locate the cause of several outbreaks of typhoid fever on the above plantations. As a result, improved sanitary arrangements have been adopted, and there has not been, so far as I am aware, any further cause for anxiety on the part of the owners.

FAIRYMEAD SUGAR PLANTATION.

The Commissioner of Public Health, becoming aware of a severe outbreak of dysentery among the kanakas employed on this plantation, directed me to make an inspection and report on the sanitary circumstances of the residential portion and hospital on this estate. On the report being received, the Government then in office directed an inquiry to be held, which resulted in more humane conditions being provided all round.

MOUNT PERRY.

At the request of the mayor and aldermen, I was instructed to make an inspection of the township, and to advise on sanitary matters generally. The sanitary depôt in use at the time was unsuitable, and the method of burial contrary to accepted principles. A new sanitary paddock in every way suited to the requirements of the town was selected. A new contractor has since taken over the work, and much rubbish has been collected and disposed of at the rubbish depôt. The sanitary and rubbish removal systems are efficiently carried out, and this town is in a much healthier and cleaner condition than when first brought under notice. I understand that the Council has been negotiating with reference to the disposal of the drainage of the town, but with what success I have been unable to ascertain.

BUNDABERG.

The drainage in this town is defective. At the present time the Bundaberg Town Council has a scheme on hand for the construction of a storm-water sewer through the town that will abate a grievous nuisance. Their sanitary paddock was found to be in a frightfully insanitary state and a standing menace to the public weal.

By order of the Commissioner of Public Health immediate measures were initiated to abate this nuisance and to introduce a proper system of burial. This town is now in a comparatively clean condition, having a conservancy system efficiently carried out. The accumulated garbage in the depôt has been fired and buried in trenches, and the non-combustible material utilised for the purpose of road-making over "spewy" ground through the scrub leading to the paddock, and also within the depôt itself, a steam-roller being used to consolidate the stuff. I found that the Plague Hospital had been damaged to a great extent by the ravages of white ants, so much so that some of the wards were rendered useless. Specifications were prepared by an officer of the Department for the rearrangement of the buildings, and a sum of money was voted to carry out the work, which was accordingly done by the officer above referred to, who called for tenders and acted as clerk of works. A large sum of money was thus saved to the Government. The hospital is now in a satisfactory state of repair, and constant vigilance is exercised to keep the white ants out of the premises.

CENTRAL DISTRICT.

CALLIOPE, MOUNT HECTOR, GLASSFORD CREEK, MANY PEAKS.

Outbreaks of typhoid fever have occurred at these mining centres. The Commissioner directed an inspector of this Department to proceed there to inspect and report. The sanitary defects were noted, and instructions issued to the Calliope Shire Council to carry out the necessary reforms.

GLADSTONE.

The condition of this town is also improving, though the drainage is still unsatisfactory owing to the difficulty of securing a proper fall across the existing tidal flats. I found the Plague Hospital deteriorating for the want of a coat of paint. The painting of the building was carried out by the departmental ratcatcher stationed at Gladstone. The hospital had never been previously painted outside, and having no verandas the woodwork would have soon decayed. The sanitary service of Gladstone is fairly well carried out. A large amount of accumulated garbage has now been removed. Apart from the drainage the town may now be said to be in a fairly good sanitary condition.

ROCKHAMPTON AND ROCKHAMPTON NORTH.

Towards the end of 1902, accompanied by an assistant, I left on a tour of inspection of this area.

In Rockhampton, though a rubbish-removal system had been established, I had to find fault with the large accumulations of rubbish throughout the city. Owing to the level site on which the town is built the drainage is faulty. The cement water-channels, laid in extremely long lengths, which do duty as sewers, have become twisted and raised in numerous instances, either through faulty workmanship or climatic conditions, probably both. They retain large volumes of sewage, which at all times is most offensive. The Council does its best in the circumstances, and men are constantly engaged sweeping and flushing out these gutters. This nuisance has been a source of grievous complaint to the Commissioner of Public Health, and the Council, at his request, has, when at all possible, abated some of the worst examples. As a plague-preventive measure a rat gang was initiated into the work of rat destruction, and left in the charge of the Medical Officer of Health. The two men engaged in this work have kept up a constant crusade of rat destruction, and are still doing excellent work, besides attending to the Shipping Regulations and the fumigation of premises where plague occurs. Early in 1906 an epidemic of plague of a serious type reappeared. Departmental action was promptly taken to stamp it out. Accompanied by an assistant I again proceeded to Rockhampton to supervise the work. In co-operation with the officers of the local authority a house-to-house inspection of the whole city was undertaken, which resulted in a thorough scavenging of the town, when hundreds of loads of refuse were disposed of. Meanwhile the sanitary depôt had been removed to a more suitable place further out of town, where all garbage is burnt and buried. The much-talked-of water scheme for these towns has not yet been commenced, and the people have still to use water of a doubtful character, especially in times of drought.

The town of North Rockhampton has also come under the attention of the Department. Accompanied by the Commissioner of Public Health and members of the Council, an inspection was made by me of the whole area. This resulted in orders being issued by the Commissioner to initiate a proper system of nightsoil and rubbish removal.

Mount Morgan.

During 1903 an inspection of this town was made by an officer of this Department, who reported adversely on its sanitary circumstances. Towards the end of the following year a serious outbreak of scarlet fever occurred. The accommodation of the General Hospital proving insufficient, the Department immediately despatched an officer in charge of a field hospital, including tents, bedding, clothing, &c., for the purpose of combating the outbreak, which was happily accomplished soon after the erection of the field hospital. On receipt of the information the whole outfit was on the way to its destination in the short space of four hours, and in two days the temporary hospital was filled with patients. But for the prompt action of the Commissioner of Public Health, the outbreak would have assumed the proportions of an epidemic. Typhoid fever was very prevalent in this municipality, probably owing to underground soakage of the contents of leaching cesspits into the wells, resorted to by the inhabitants in dry seasons for their water. Since the introduction of the pan system these outbreaks have not been quite so serious. The nightsoil service is on the duplicate pan principle. The work is carried out in the daytime, and the waste matter destroyed by fire. As yet there is no properly organised rubbish removal system for the collection and disposal of household and trade refuse.

Trouble arose over the position of the sanitary depôt, but a solution of this difficulty has been arranged satisfactorily to all parties concerned.

The drainage question is still unsettled and most unsatisfactory.

Ilfracombe.

An officer of this Department was instructed to make an inspection of Ilfracombe, and report on the sanitary circumstances of the place, and inquire into the cause of a severe outbreak of typhoid fever.

The conclusion arrived at was that it was owing to the insanitary condition of the township. The Ilfracombe Shire Council was notified of the improvements requisite to place the township in a more sanitary condition.

NORTH AND NORTH-WESTERN DISTRICTS.

Mackay.

I was instructed, whilst on duty in North Queensland, to inspect and furnish a report on the sanitary circumstances of the town. As a result of this inspection the Town Council was called upon to remove the refuse, abolish the dump-cart system of nightoil disposal, and to initiate a sanitary service on the duplicate pan system. These instructions have been faithfully carried out, and the town may now be said to be in a much improved sanitary condition.

Bowen.

During my visit to the North I called at Bowen for the purpose of conferring with the Council on sanitary matters. I selected a sanitary depôt, and furnished them with all the necessary plans and information for their guidance. The Town Council have recently called for tenders for a sanitary service on the duplicate pan system.

Townsville and Shire of Thuringowa.

A sanitary survey of this Northern centre has resulted in a much improved condition of affairs. I found the town in a very filthy state, with the accumulated garbage of nearly half a century to remove. As usual the Town Council objected to do anything, consequently an Order in Council was obtained which had the desired effect. I personally supervised the work, and removed about 2,000 loads of garbage. Several cases of plague occurred during my stay, two of which proved fatal. Pressure was brought to bear on the Council, and a rubbish-removal system instituted, with the result that the area is now in a better sanitary condition, though much remains to be accomplished in connection with the drainage of the town. Even though the Council has been mulcted in damages for the flooding of premises through defective sewers, no steps have as yet been taken to remedy matters, even though visiting departmental health officers and inspectors have drawn the attention of the Council to the state of the sewers in question, and the Commissioner of Public Health remonstrated with the Council.

In order to combat plague two men were initiated into the work of rat destruction and fumigation. They also attend to the Shipping Regulations which are in force, and work under the direction of the Government Medical Officer. The water was at this time also of a doubtful character, and in time of drought liable to serious pollution. On account of plague and other urgent matters requiring the presence of an experienced inspector, an officer of this Department was stationed in Townsville for a period of over three months strictly enforcing the oversea and inter-state Shipping Regulations, which had been for some time laxly enforced.

At the time of the cleansing operations opportunity was taken to inspect that part of the Shire of Thuringowa adjacent to Townsville, and as a result of this inspection the Shire Council were ordered to clean up their area, which they immediately did without demur.

CHARTERS TOWERS AND QUEENTON.

During the latter portion of the year 1906, acting under instructions from the Commissioner of Public Health, I proceeded to Charters Towers for the purpose of making a sanitary survey of the whole district, and to inquire into the cause of the recurrent outbreaks of typhoid fever. Both places were in a very filthy condition, and most insanitary, the Charters Towers sanitary station and contract being conducted in a disgraceful manner. The Queenton Shire Council were busy with their new incinerator, consequently their sanitary affairs were in a state of transition. Much feeling was displayed by both Councils, and it was alleged that my report to the Commissioner was "greatly exaggerated." Nevertheless, six months after my visit of inspection, the mayor said at a meeting of the Council: "They saved the town from disgrace by cleaning it up." During the few weeks that the cleansing operations had been carried on 256 tons of garbage had been collected and removed from this small town, and the work was still in progress at the time referred to. On their own showing, the intervention of the Commissioner of Public Health in affairs affecting the health and well-being of this community had been amply justified. I made a subsequent inspection of both places and found a great difference in Charters Towers, where the sanitary depôt is second to none in Queensland, both for cleanliness and the general arrangements of the whole plant and place. The Queenton Shire Council had only then got their incinerator into proper working order, and were making final arrangements for securing a rubbish depôt, and I expect, when on some future occasion I have to report on this shire, I will be able to do so favourably.

CAIRNS.

An outbreak of plague having taken place in Cairns in the latter end of 1903, the Commissioner despatched an officer from the Department for the purpose of cleansing the town and initiating a gang of men in the work of rat-destruction and fumigating. A systematic house-to-house inspection of the whole town was carried out. On the completion of the inspection, it was apparent that the whole town was in a somewhat dirty condition, consequently orders were issued by the Commissioner to have the town cleansed. The local authority co-operated in this work, and 360 loads of garbage were collected and disposed of on this occasion. A closely-settled portion of Malaytown, where coloured aliens resided, having been certified as being incapable of cleansing and disinfection, was destroyed by fire. In 1907, plague having again made its appearance in Cairns in an aggravated form, and being likely to interfere with the commercial interests of the State, I left for the latter place, under instructions from the Commissioner of Public Health, for the purpose of assisting the Government Medical Officer in the measures initiated by him for the suppression of the outbreak. A house-to-house inspection was again made, and a gang of men with drays placed at my disposal. Some 230 loads of garbage were removed, disinfected, and buried or consumed by fire. The large growth of weeds abounding on vacant lands within the town was cut down in order to get at the rats harbouring there. Large numbers of rats were destroyed during the cleansing operations. Cleansing and rat-destruction were carried out simultaneously. Numbers of hotels, stores, &c., that were plague-infected, were placed under strict quarantine during the operations. Disinfection was carried out in every instance where required. Several buildings, including hotels and wholesale warehouses, were condemned, and a row of shops and dwellings was demolished by order of the Town Council. This town has improved remarkably since it first came under the notice of the Commissioner of Public Health. The drainage is still unsatisfactory, and likely to remain so until money is available to carry out a comprehensive scheme. The heavy rainfall and the sandy soil upon which the town is built is the salvation of the place. A duplicate pan service is in force here, also a weekly service for the collection and disposal of household and trade refuse, the latter being utilised for reclaiming swamps, &c.

CHILLAGOE AND MUNGANA.

Severe attacks of typhoid fever having occurred from time to time amongst the workmen engaged at the copper smelters, as well as the residents of the township of Chillagoe, I proceeded there for the purpose of making an inspection and report. Subsequent outbreaks of fever occurred, and the Walsh Shire Council having failed to give effect to the recommendations of the Department, I was again instructed to proceed and lay before the Shire Council the wishes of the Commissioner. The Council agreed to carry out the recommendations, and the work was accordingly placed under my supervision, and as the result of our labour 781 loads of garbage were collected in the towns abovementioned and disposed of by fire or burial. The Council have not as yet taken any steps to initiate a sanitary or rubbish removal system.

IRVINEBANK AND STANNARY HILLS.

Reports having been furnished by me regarding the sanitary circumstances of Stannary Hills and Irvinebank, the Commissioner ordered these towns to be thoroughly scavanged. Accordingly this work was undertaken by the Walsh Shire Council, after operations were completed at Chillagoe under my direction. During the operations 600 loads of garbage were disposed of, old cesspits filled up, and the whole area left in a more wholesome condition than existed for many years previous.

MOSSMAN AND PORT DOUGLAS.

An outbreak of plague having occurred in the canecutters and woodgetters' camps in the Mossman and Port Douglas districts, the Department despatched a health officer and inspector to adopt measures for the destruction of the vast hordes of rats infesting the sugar-cane fields, in order to prevent plague infection making headway among them, and also, if possible, to check the spread of the disease among humans. Cane farmers were instructed in all the most approved methods of rat destruction, and large numbers of canegrowers all along the north coast sugar lands availed themselves of this gratuitous instruction, and good results have accrued. The Douglas Shire Council were called upon to improve the sanitary conditions of the camps and townships within their area. Camp regulations were drawn up by the Commissioner, and these are now being enforced within the district. A nuisance inspector was also appointed to attend to these and other matters.

GERALDTON.

A house-to-house inspection has been carried out, and the accumulations of garbage found removed. A squad of men with horses and drays was placed at my disposal, and during the operations I removed 350 loads of refuse and garbage of every description, and disposed of it by burial.

EINASLEIGH RAILWAY.

While in the vicinity of some of the camps where numerous cases of typhoid of a virulent form had occurred, I made an inspection of them in order, if possible, to locate the cause of these outbreaks. I am of opinion that they were primarily due to the careless and dirty habits of the campers themselves. Fever generally disappears for a time when a camp is broken and shifted to a new site, but where the old conditions are perpetrated, the fever usually makes its reappearance.

TOWN OF KIDSTON (OAKS GOLD RUSH).

The sudden inrush of population to this goldfield, so far removed from any settlement where medical attention can be obtained, caused alarm in the minds of the Progress Association, in view of the fever outbreak among the workmen engaged in the construction of the Einasleigh Railway, over which line much passenger traffic to the gold rush was carried.

Acting under the Commissioner's instructions, I made an inspection of and furnished a report on the sanitary conditions of the field.

The St. George Shire Council was called on to initiate measures for the protection of the Copperfield River from pollution, and also for the sanitary betterment of this rising township.

MAREEBA.

In compliance with instructions, I made an inspection of this growing township, and furnished a report on the sanitary circumstances. The Barron Shire Council has been called upon to provide a sanitary and rubbish removal system within the town. The local authority has informed the Commissioner that steps have been taken to give effect to his instructions.

I have, &c.,

JOHN SIMPSON, Chief Inspector.

The Commissioner of Public Health, Brisbane.

APPENDIX B.

ANNUAL REPORT OF THE GOVERNMENT ANALYST FOR 1907-8.

SIR,—I have the honour to submit the following Report of the work done in the Government Chemical Laboratory for the Health Department during the year 1907-8.

The number of samples submitted for analyses and reported during the year was 527, involving 3,551 determinations. This is the greatest amount of work that has yet been done for the Health Department, and means that that Department is now supplying a larger proportion of the work of the Government Chemical Laboratory than any other Department.

Eighty-one samples of fresh milk were submitted for analysis, 15 being for butter fat only, and all passing the 3 per cent. limit. Of the remaining 66 samples, 37 (equivalent to 56 per cent.) failed to pass the legal standard for solids not fat, varying in the proportion of indicated added water from 1 to 19 per cent., with an average of 8·7 per cent. If the ordinary average standard of 8·9 per cent. of non-fatty solids be taken instead of the low legal one, then only 9 samples could be considered pure, leaving 57 samples (or over 86 per cent.) more or less adulterated with water, the average amount of added water being almost exactly 10 per cent. on this standard. Taking all the samples submitted, pure and adulterated, and averaging the added water over the lot on the 8·9 per cent. solids not fat basis, which is certainly not too high for Queensland, the amount becomes 8·4 per cent. Mr. Thornhill Weedon, Government Statistician, has kindly estimated for me the probable annual consumption of milk in Brisbane and suburbs, which he makes out to be 1,500,000 gallons. At 4d. per quart, this gives £100,000 as the value of the year's milk supply. If the samples taken by the inspectors are fairly representative of the whole supply, then the milk contains on the average 8·4 per cent. of added water, and the public are paying not less than £8,400 per annum for added water. As the total fines and costs for adulterating milk last year did not reach £200, there is evidently a big margin for profit in continuing the adulteration in spite of the fines.

It is an almost universal belief that the addition of a little water to milk tends to prevent its turning sour. That has repeatedly been put forward in court as an excuse, was used as an excuse in several of the above cases, and was even admitted as a known fact by a magistrate. While it is partly responsible for so many of the milk samples containing from 2 to 5 per cent. of added water, it is, of course, entirely erroneous. The addition of water, particularly of the dirty creek or other water available at most dairies, materially hastens the souring of the milk. Cleanliness in the milking, and in the dairy generally is the only method available for preventing the souring of milk. Not only is the addition of this water fraudulent, but, as most of the dairies are away from the town supply, the water added is generally creek water, and creek water is invariably dangerous around Brisbane. The watering of the milk is undoubtedly directly responsible for the spread of much disease, and is directly and indirectly responsible largely for the high infantile mortality.

Two hundred and forty-nine samples of cream of tartar were examined, and of these samples 28, representing 16 shipments, failed to reach the 95 per cent. standard. As only 7 samples in all failed to reach 94 per cent., and the lowest was over 91 per cent., it will be seen that the high quality of the imported cream of tarter is being maintained.

Potted meats, potted ham, and such mixtures, intended for making sandwiches, &c., still keep up their bad reputation. Of 14 samples examined 7 were condemned as containing preservatives. Three samples contained over 43 grains of boric acid per pound. Fortunately those of local manufacture were all genuine, being free from preservatives, and not filled with starch like most of the imported brands.

The flavouring essences still show a tendency to fraudulent manufacture, as out of the 23 samples submitted for analysis 17 contained only traces of the flavouring agent.

Of the 14 samples of sauces examined all were found free from preservative, while of 13 samples of vinegar 10 were diluted acetic acid and 3 were brewed malt and sugar vinegars. Four of the diluted acetic acid vinegars were below the 3 per cent. standard of acidity.

Nineteen samples of beverages and cordials were examined, most of them being passed as fit for human consumption. Three samples of sarsaparilla extract contained respectively 2·9 per cent., 10·5 per cent., and 13 per cent. of proof spirit, while 5 samples of sarsaparilla, including the above 3, contained salicylic acid, 1 sample reaching 5 grains of salicylic acid per pint.

Of twenty-five samples of tinned peas examined 7 were found free from copper, while 18 contained copper ranging from 0·4 to 2·3 grains of copper sulphate per pound, and averaging 1·41 grains of sulphate per pound.

Of six samples of spirituous liquors, 2 of wine and 2 of beer were found to be up to standard.

Of 10 samples of condensed milk examined 4 passed and 6 failed, 5 of the latter being samples of a suspected brand. As the other sample was just below standard this means that 4 out of the 5 brands tested were up to the standard.

Eighteen samples of water were examined from various sources, and 9 were condemned. Some, where the analyses were undertaken as a result of an outbreak of typhoid fever, were found to be practically diluted sewage.

The remaining samples were: Disinfectants, 3; cake, 3; plants, 3; coffee, 1; coffee essence, 1; oatmeal, 2; confectionery, 5; honey, 1; jellies, 5; pepper, 5; tinned fish, 4; medicines, 3; colouring, 2; preservative, 1; cheese, 1; curry powder, 1; custard powder, 1; limejuice, 2; mustard, 1; pickles, 2; salad oil, 1; bread, 1; preserved vegetables, 6; infant food, 1; butter, 1.

No referee samples were received under the Health Act, section 98, subsection 8.

The Laboratory is now better equipped for dealing with the routine of the samples from your Department, and a greater number of samples can be put through than was formerly the case.

I have, &c.,

J. BROWNLIE HENDERSON, Government Analyst.

The Commissioner of Public Health, Brisbane.

APPENDIX C.

REPORT OF THE PORT HEALTH OFFICER, AND ASSISTANT HEALTH OFFICER TO THE DEPARTMENT OF PUBLIC HEALTH.

Sir,—I have the honour to submit my Report for the year ending 30th June, 1908.

I returned from leave and resumed duty in October, 1907. To avoid repetition no mention is made in my Report of the various aspects of departmental work which come under the purviews of those of the Chief Inspector and the Staff Nurse, being limited to the examination of shipping and the incidence of plague.

Shipping.

In the year under consideration ninety-eight vessels were visited at the Port of Brisbane, in each case all on board being examined. None of these vessels but one came under the category of infected or suspicious vessels, the one exception being the "Nikko Maru," which arrived on 10th February from Japan. Three cases of smallpox had occurred on her at Manila, the last having been discovered and landed on 25th January, and the vessel thoroughly disinfected before leaving the port. She had therefore passed from the category of "infected" to that of "suspected" vessel on the day of arrival.

Total ships examined	98
Infected	0
Suspected	1

The health of those on visiting ships has been exceedingly good. The commonest illness is malaria, though it is not common to find seamen and passengers incapacitated by it.

The Launch "Hygeia."

The departmental launch was at first a source of greater annoyance than comfort, owing to breakdowns which occurred nearly every time she was used. However, after continual small repairs and improvements she has made very satisfactory runs.

The lengthening of the jetty at Colmslie, rendered useless by the sand deposited on the river bank by the Department of Harbours and Rivers, has enabled the launch to be used by myself and nurses when the Plague Hospital is open, and has proved a great convenience. Certain alterations still need to be done to make the launch safe to steer from under the cover, the boat throwing up so much spray that the cover has often to be lashed down even in the river.

Plague.

Though the number of cases was low the mortality has been high, particularly in the Metropolitan Area. The outbreak has been remarkable for great variation from the usual clinical types, and consequent difficulty in diagnosis. The subjoined table shows the places where the disease occurred, the case and sex incidence and mortality of each place, and the case and sex incidence and mortality of the whole State:—

Sex.	Metropolitan Area.		Cairns.		Mackay.		Total.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Males	13	12	11	6	1	1	25	19
Females	3	1	3	1	...	...	6	2
	16	13	14	7	1	1	31	21

The gross death rate, therefore, for the whole State is 67·761 per cent. The corrected death rate for whites is 61·52. There were two cases among Chinese, one kanaka, and two Cingalese, all males and all fatal, one Chinese and one kanaka being in the Metropolitan Area, one Chinese at Mackay, and one Cingalee and one coloured man (? Cingalese) at Cairns.

The following table shows the comparative incidence of plague in rodents in the Metropolitan Area:—

Plague in Rodents—Metropolitan Area.

Month.	Year 1906-07.			Year 1907-08.		
	Rodents Examined.	Rodents Infected.	Per Cent.	Rodents Examined.	Rodents Infected.	Per Cent.
July	567	2	0·35	1,393	4	0·28
August	718	8	1·12	1,610	6	0·37
September	364	...	...	1,141	5	0·43
October	522	1	0·19	1,569	2	0·12
November	795	...	...	1,946	5	0·25
December	1,286	10	0·78	1,522	1	0·65
January	1,249	4	0·32	1,719	...	...
February...	1,574	6	0·38	1,612	21	1·32
March	1,751	1	0·06	1,587	1	0·06
April	1,494	5	0·33	2,000	...	...
May	1,997	3	0·15	1,799	17	0·94
June	2,314	3	0·13	1,556	11	0·709
Total	14,631	43	0·225	19,454	73	0·37

The following table shows the comparative monthly incidence of this and the previous year in the Metropolitan Area in Humans :—

PLAGUE IN HUMANS—METROPOLITAN AREA.

	Year 1906-7.	Year 1907-8.
July	...	3
August	...	...
September	...	1
October	...	...
November	2	...
December	1	...
January	17	4
February	4	2
March	3	3
April	3	1
May	2	1
June	7	1
Total	39	16

The following table shows the lustral age incidence and mortality for the whole State :—

	Cases.	Deaths.
Under 5 years	1	...
5 to 10 years	...	...
10 „ 15 „	3	2
15 „ 20 „	7	6
20 „ 25 „	5	4
25 „ 30 „	3	2
30 „ 35 „	3	1
35 „ 40 „	...	...
40 „ 45 „	...	...
45 „ 50 „	1	1
50 „ 55 „	2	2
55 „ 60 „	...	...
60 „ 65 „	1	1
Not noted but adults	5	2

The following table shows the number and mortality of each form of the disease :—

—	METROPOLITAN AREA.		CAIRNS.		MACKAY.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Bubonic	12	9	12	5	1	1
Septicæmic and 1 bubo-septicæmic	3	3	2	2	...	...
Pneumonic	1	1	...	...	...	...

Whole State.

	Cases.	Deaths.
Bubonic	25	15
Septicæmic	5	5
Pneumonic	1	1

Of the Brisbane septicæmic cases 2 were followed by a fatal pneumonia. Six cases in Brisbane were not diagnosed positively till after death, though 2 of them were suspected. Two cases in Cairns were diagnosed P.M.

The following table shows the site of bubo and the accompanying mortality :—

	Cases.	Deaths.
R. Fem.	12	5
L. Fem.	7	5
Femoral side not noted	1	1
R. Inguinal	2	1
L. Inguinal	3	2
R. Submax	1	1
R. Axil.	3	3
Multiple	3	2

The cases shown as multiple are also shown in two other columns.

Where premises were supposed to be infected advantage was taken of the recently introduced guinea-pig test—*i.e.*, healthy guinea-pigs were let loose for a night in the premises and themselves kept under observation, and any fleas found on them examined. By this means valuable information was acquired.

I have, &c.,

FRED. WOOLRABE,
Health Officer.

APPENDIX D.

Bacteriological Institute,
Brisbane, 9th September, 1908.

Sir,—I have the honour to submit the following Report showing the work relating to your Department performed in the Institute during the year ended 30th June, 1908:—

Plague.

During the period under review there were examined 17,815 rats and 2,495 mice. In 73 of the rats, *B. pestis* was detected. This shows an increase of above 4,000 rats and mice examined and 30 rats infected over the corresponding period of the previous year.

During the commencement and the closing of the epizootic, special precautions were observed to ensure the correctness of the diagnosis, for, in addition to the microscopic examination of stained smears from the suspected infected glands, spleen, &c., culture media and animal experiments were carried out.

From human cases of suspected plague, 9 specimens of blood and 32 of lymph were examined. In 2 of the blood and 15 of the lymph, *Bacilli pestis* were detected. In sputum from 2 cases plague bacilli were found in large numbers. The bacilli were detected in the viscera from 9 *post-mortem* cases.

Repeated attempts have been made to demonstrate the presence of the bacilli in blood films from patients, but the only ones in which plague organisms were detected were those from septicæmic cases. The purely bubonic cases were negative in every instance.

On the 2nd April last I submitted a tabular report on the results of liberating a number of healthy guinea-pigs on supposed plague-infected premises in the city. In all, 37 guinea-pigs were experimented with. After being allowed to run free on the various floors of the premises for two days, they were captured. Each was placed in a flea-proof jar, and on arrival at the laboratory was chloroformed, and a flea count made. The number of fleas found varied from 1 to 64 on a single animal. The total was 307, all of one species—viz., *Pulex cheopis.*

The stomach juices of 186 were examined microscopically, and in 27 fleas plague bacilli were detected.

Fleas were found on 26 guinea-pigs, and 9 of these died of plague, the primary buboes with one exception (which was inguinal)being situated in the cervical region.

Some of the fleas that had recovered from the effects of chloroform during the counting process were placed on other healthy animals—viz., 12 guinea-pigs, 4 rats, and 4 mice—each animal being isolated in its own special flea-proof jar. Of this number 6 guinea-pigs, 4 rats, and 3 mice died of plague, the infection having been transmitted by the agency of the rat-flea, *Pulex cheopis.* Moreover, in nearly every one of these plague-infected animals the primary bubo was situated in the cervical or sub-maxillary region.

Another interesting feature in connection with these experiments was that the majority of fleas placed on the animals invariably found their way to, and located themselves in, the hair behind the ears—or under the neck.

Anti-plague Serum.

In February last I submitted a report giving details of a number of experiments conducted with anti-plague serum from the Lister Institute. Guinea-pigs were inoculated with virulent plague bacilli and infected either before, simultaneously, or after with varying quantities (from 4 c.c. to 20 c.c.) of the serum, and as a result it was clearly shown that the serum in question possessed very decided protective and curative properties.

Danysz Rat Virus.

The members of the rat gang have been supplied three times per week with varying quantities of virulent broth cultures of the bacillus, mixed with oatmeal and pollard, and ready for distribution in rat-infested premises.

Of the rats received from the Brisbane district, 194 were found to present typical *post-mortem* appearances of the disease. Time would not permit of a systematic examination of all the rats submitted being made, otherwise it is highly probable that a great many others would have been found infected with the disease.

There has been an increasing demand for this special form of bait from several of the large sugar and coffee plantations in North Queensland. The reports from these places show highly satisfactory results.

Since my last Annual Report there has been very considerable progress made in the method of increasing the virulence of this rat disease-producing organism. The latest modification consists in introducing the organism in a small quantity of bouillon, which is contained in a specially prepared flexile collodion sac. The sac is hermetically sealed and placed, with antiseptic precautions, within the peritoneal cavity of a rabbit, where it remains for from three to five days. Under these conditions diffusion readily takes place. The bacterial products pass out, whereas the albuminous highly nutritive peritoneal fluids (minus the cellular elements) pass into the sac. The bacilli are thus enabled to grow in the fluids of the body without being affected in any way by the phagocytes. Usually after the third day, when the sac is removed, it is found to be completely filled with a turbid fluid containing a luxuriant growth of bacilli, which are markedly increased in virulence.

TUBERCULOSIS.

Of 372 specimens of sputum submitted, 128 were found to contain the bacillus. In specimens from incipient cases, the presence of bacilli could only be detected by the inoculation of guinea-pigs.

No trouble has been experienced in obtaining from the sender the name and address of the patient, which, in turn, has been supplied to Staff Nurse Perry to enable her to impart to the patients and their friends the necessary information with regard to the disinfection of the sputum and other precautionary measures.

LEPROSY.

Serum from 16 cases of suspected leprosy have been examined. In 12 of these cases the bacilli were discovered forming colonies within the tissue cells. In several cases the examination of specimens of the nasal mucous showed a number of leprosy bacilli, which greatly facilitated towards diagnosis, particularly where the disease was in the early stage.

TYPHOID.

Specimens of blood were received from 467 cases, of which 150 were found to be positive. The majority of these was from the Brisbane Hospital. From several years' experience it has been found that the most satisfactory and convienent method of sending blood is on a clean piece of burnished note paper, on which is also given the details as to name, age, sex, and duration of illness. Specimens of blood in sealed capillary tubes are invariably received contaminated with extraneous organsims, which results from non-observance of the necessary antiseptic precautions, thereby militating against obtaining satisfactory reactions.

DIPHTHERIA.

The specimens submitted were less in number than during the previous year. Of 323 received, 157 were found to contain Klebs-Loffler bacilli. The greater number of these specimens were from the Hospital for Sick Children, while the remainder were sent by medical practitioners, all of whom are supplied on demand with the necessary sterilised swabs and tubes.

PATHOLOGICAL TISSUES.

Sections have been cut and stained by various special methods from 144 specimens, including carcinoma, epithelioma, sarcoma, &c. The prepared microscopic specimens are submitted for examination and report to the Honorary Pathologist (Dr. Wilton Love).

WATER EXAMINATIONS.

Thirty-one samples were received, principally from local authorities, for quantitative and qualitative bacteriological examination. But although no typhoid bacilli were detected, many of the samples were found to contain numbers of organisms beloning to the coli group.

ICE CREAM EXAMINATIONS.

In January last I submitted a special report on the quantitative and qualitative bacteriological examination of 41 samples of ice cream collected by Inspecter Henley. The samples, which represented the whole of the vendors (shop and barrow) of North Brisbane, were tested for reaction (acid, alkaline, or neutral), colour, albumen, starch, formalin, lactic acid, the production of gas in glucose agar, bacteria, typhoid and coli organisms, colonies on Endo's media, and the number of bacteria per cubic centimetre. Many of the samples were found to be grossly contaminated with bacteria, while several contained numbers of coli bacilli.

EXAMINATION OF SOILS, FLIES, AND GROUND LICE FROM WESTERN QUEENSLAND.

During the months of October and November last year the Hon. Dr. Taylor forwarded from various districts in Central Western Queensland 19 specimens of sand and 9 of flies and ground lice, the whole being collected in the vicinity of different State schools, where many of the children had been previously affected with a form of epidemic ophthalmia. The various organisms were isolated, and cultivated in and on various nutrient media. Nearly 100 guinea-pigs were experimented with, but no definite reactions or symptoms of ophthalmia eventuated. The observations were embodied in a special report to the Hon. Dr. Taylor on the 18th February last.

MISCELLANEOUS.

The results of the examinations of the miscellaneous specimens will be seen in an appended list.

I have, &c.,
C. J. POUND,
Assistant Bacteriologist.

The Commissioner of Public Health, Brisbane.

APPENDIX E.

TABLE GIVING PARTICULARS OF SPECIMENS EXAMINED AT THE BACTERIOLOGICAL INSTITUTE DURING THE YEAR ENDED 30TH JUNE, 1908.

Disease.	Description of Specimen.	Number.	Positive.
Plague	Rats	17,815	73
,,	Mice	2,495	...
,,	Blood	9	2
,,	Lymph	32	15
,,	Viscera	9	5
,,	Sputum	2	2
Danysz	Above-mentioned rats	...	194
Tuberculosis	Urine	3	...
,,	Sputum	372	128
,,	Pus	5	...
,,	Scrapings from pharynx	1	...
Typhoid	Blood	467	150
,,	Water	10	...
,,	Milk	2	...
Diphtheria	Throat swabbings	323	157
,,	Nasal swabbings	2	...
Influenza	Exudate	3	...
Leprosy	Serum	16	12
Pyogenic bacteria	Pus	2	2
Animal parasites	Human	1	1
Pathological tissues	Human	144	...
Falaria	Blood	1	...
Gonorrhœa	Pus	15	5
HCL & C3 H6 O3	Stomach contents	1	...
Colon bacilli	Urine	2	...
,,	Pus	1	...
Ankylostoma	Fæces	1	...
,,	Worms	1	...
Internal worms	Fæces	1	...
Sarcina	Stomach contents	1	...
Tetanus	Fuller's Earth	1	...
Miscellaneous	Milk	1	...
,,	Sputum for bacteria	2	...
,,	Urine	11	...
,,	Pus	2	...
,,	Water	31	...
,,	Bread	1	...
,,	Germicidal diseases	1	...
,,	Yersin anti-plague serum	1	...
,,	Fæces	2	...
,,	Cerebro-spinal fluid	2	...
,,	Sand from Western schools	7	...
,,	Sand and dust from Western schools	12	...
,,	Flies from West	7	...
,,	Ground lice from West	2	...
,,	Portion of ham with abscess	1	...
,,	Ice creams	41	...
,,	Discharge for spermatozoa	2	...
,,	Mesenteric glands	2	...
,,	"Kresol" disinfectant	1	...
	Total	21,869	746

Price 1*s*.]

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